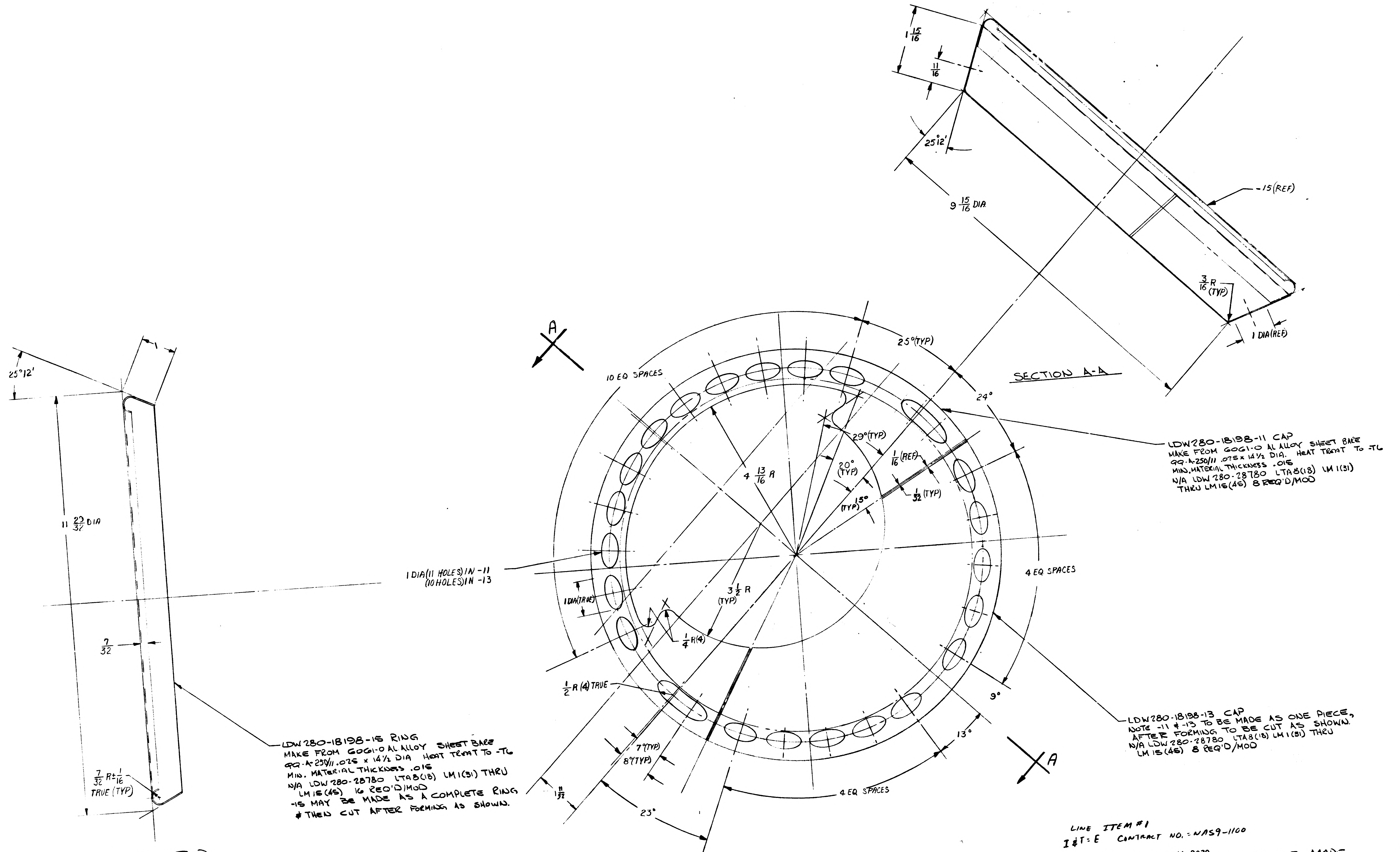

1 15/16
11/16
25°12'
9 15/16 DIA
-15 (REF)
3/16 R (TYP)
1 DIA (REF)
SECTION A-A
A
25°(TYP)
10 EQ SPACES
24°
29°(TYP)
20° (TYP)
1/16 (REF)
1/32 (TYP)
(TYP) 15°
4 13/16 R
3 1/2 R (TYP)
1 DIA (11 HOLES) IN -11
(10 HOLES) IN -13
4 EQ SPACES
1 DIA (TRUE)
1/4 R (4)
1/2 R (4) TRUE
9°
13°
7°(TYP)
8°(TYP)
1 11/32
23°
4 EQ SPACES
A
25°12'
1
11 23/32 DIA
7/32
7/32 R ± 1/16 TRUE (TYP)
SECTION B-B

LDW280-18198-11 CAP
MAKE FROM 6061-O AL ALLOY SHEET BARE
QQ-A-250/11 .025 x 14 1/2 DIA. HEAT TREAT TO -T6
MIN. MATERIAL THICKNESS .016
N/A LDW 280-28780 LTA8(18) LM 1(31)
THRU LM15(45) 8 REQ'D/MOD

LDW280-18198-13 CAP
NOTE -11 & -13 TO BE MADE AS ONE PIECE,
AFTER FORMING TO BE CUT AS SHOWN.
N/A LDW 280-28780 LTA8(18) LM1(31) THRU
LM 15(45) 8 REQ'D/MOD

LDW 280-18198-15 RING
MAKE FROM 6061-O AL ALLOY SHEET BARE
QQ-A-250/11 .025 x 14 1/2 DIA HEAT TREAT TO -T6
MIN. MATERIAL THICKNESS .016
N/A LDW 280-28780 LTA8(18) LM1(31) THRU
LM15(45) 16 REQ'D/MOD
-15 MAY BE MADE AS A COMPLETE RING
& THEN CUT AFTER FORMING AS SHOWN.

02/02

NAS 9-1100

LINE ITEM #1
I&T: E CONTRACT NO. = NAS9-1100

FINISH - ANODIZE (88) LSP 14-9030 * DWG NOT MADE
TOL: FRACTIONAL ± 1/32 ANGLE ± 1/2 DECIMALS ± .020

N/A LDW 280-28780 CONTROL # LDW280A3428

(2)

DETAIL SPEC REQD		CLASS II ENGRG CHG	✓	CLASS I ENGRG CHG	CONTROL INFO NO. LDW280A326

REASON FOR EO	DESCRIPTION OF EO	GRUMMAN EO RELEASE
TO PROVIDE ADEQUATE VENTING (THERMO REQUIREMENT)	E.O. A, INITIAL DRAWING RELEASE PARTS MADE PER E.O	11/17/6 50-1

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18) LM1(31) THRU LM15(45)	

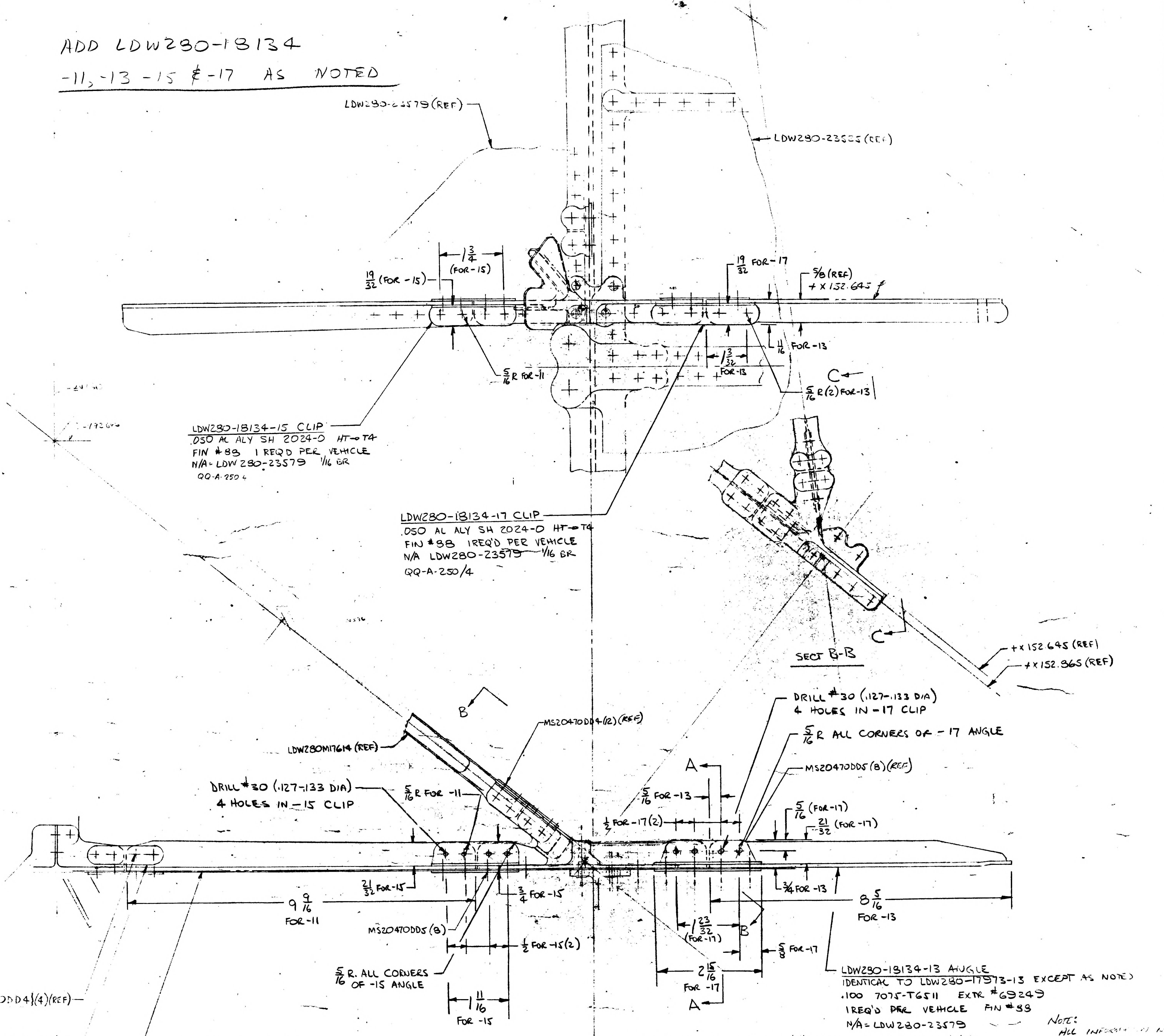
DRAWING REVISION REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	BY / DATE			RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	
*		NOT REQ'D		11/15/66 5	VD1			11/15/66			RMC 11-15-66	11/15/66

PRIORITY	DRAWING TITLE	ENGINEERING ORDER DRAWING NO.	EO NO.
C	CAP D/S UPPER OUTRGR PRESS. VENT. SUPT	LDW280-18198	A1

J ROGERS | J STRAKOSCH x1153
ISSUED BY P. WOSSLITZ SECTION V.D.1. GROUP NO. 335 PL 35
CODE IDENT NO. 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.
ENG 32.3 REV 3-65

CDR = 11/15/66

ADD LDW280-18134
-11, -13 -15 & -17 AS NOTED


LDW280-23579 (REF)
LDW280-23505 (REF)
19/32 (FOR -15)
1 3/4 (FOR -15)
19/32 FOR -17
5/8 (REF)
+X 152.645
5/16 R FOR -11
1 3/32 FOR -13
1/16 FOR -13
5/16 R (2) FOR -13
C
LDW280-18134-15 CLIP
.050 AL ALY SH 2024-0 HT→T4
FIN #88 1 REQ'D PER VEHICLE
N/A = LDW280-23579 1/16 BR
QQ-A-250/4
LDW280-18134-17 CLIP
.050 AL ALY SH 2024-0 HT→T4
FIN #88 1REQ'D PER VEHICLE
N/A LDW280-23579 1/16 BR
QQ-A-250/4
SECT B-B
+X 152.645 (REF)
+X 152.365 (REF)
B
LDW280M17614 (REF)
MS20470DD4-(2) (REF)
DRILL #30 (.127-.133 DIA)
4 HOLES IN -15 CLIP
5/16 R FOR -11
DRILL #30 (.127-.133 DIA)
4 HOLES IN -17 CLIP
5/16 R ALL CORNERS OF -17 ANGLE
MS20470DD5 (8) (REF)
A
5/16 FOR -13
1/2 FOR -17 (2)
5/16 (FOR -17)
21/32 (FOR -17)
21/32 FOR -15
3/4 FOR -15
3/4 FOR -13
9 9/16 FOR -11
8 5/16 FOR -13
MS20470DD5 (8)
1/2 FOR -15 (2)
1 23/32 (FOR -17)
5/8 FOR -17
5/16 R. ALL CORNERS OF -15 ANGLE
2 15/16 FOR -17
1 11/16 FOR -15
MS20470DD4 (4) (REF)
LDW280-17710-11 FS (REF)
LDW280-17739-15 NS (REF)
LDW280-18134-11 ANGLE
* IDENTICAL TO LDW280-17973-13 EXCEPT FOR LENGTH
.100 7075-T6511 EXTR #69249
1 REQ'D PER VEHICLE FIN #88
N/A = LDW280-23579
LDW280-18134-13 ANGLE
IDENTICAL TO LDW280-17973-13 EXCEPT AS NOTED
.100 7075-T6511 EXTR #69249
1 REQ'D PER VEHICLE FIN #88
N/A = LDW280-23579

DRAWING TOLERANCE: FRACTIONAL ± 1/16, DECIMAL ±.020, ANGULAR ± 1/2°
ALL PARTS I & T (E)

* NEW DRAWING - NO PARTS MADE

NOTE:
ALL INFORMATION NOT REQ'D FOR THE MANUFACTURE OF THE DETAIL PARTS IS FOR REFERENCE ONLY

* REWORK INFO. -11 ANGLE MAY BE MADE FROM LDW280-17973-13

01 NAS 9-1100

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG	CONTROL INFO NO [illegible]
REASON FOR EO: ADDITION OF RTG FUEL CASK STRUT			DESCRIPTION OF EO: [illegible] PARTS MADE [illegible] EO		GRUMMAN EO RELEASE

MODEL	PROCURING ACT NO	GAEC UNIT NO	SUB CONTR UNIT NO
LM		LM-3 (33)	
LM		LM-4 (34)	
LM		LM-5 (35)	
LM		LM-6 (36)	
LM		DESIGN VERIFICATION	

DRAWING REVISION REQD: ✱ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP
DATE | BY | SUPPORT | RELIAB GROUP | GROUP LEADER | STRESS GROUP | LIAISON ENGRG | PROJ ENGR | ~~GOV'T~~
PRIORITY: C
DRAWING TITLE: ANGLE - DESCENT STAGE [illegible] LABEL
ENGINEERING ORDER
DRAWING NO: LDW280-18134
EO NO: A
ISSUED BY [illegible]
SECTION [illegible]
GROUP NO [illegible]
PL [illegible]
CODE IDENT NO 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.
ENG 32 3 REV 3 65

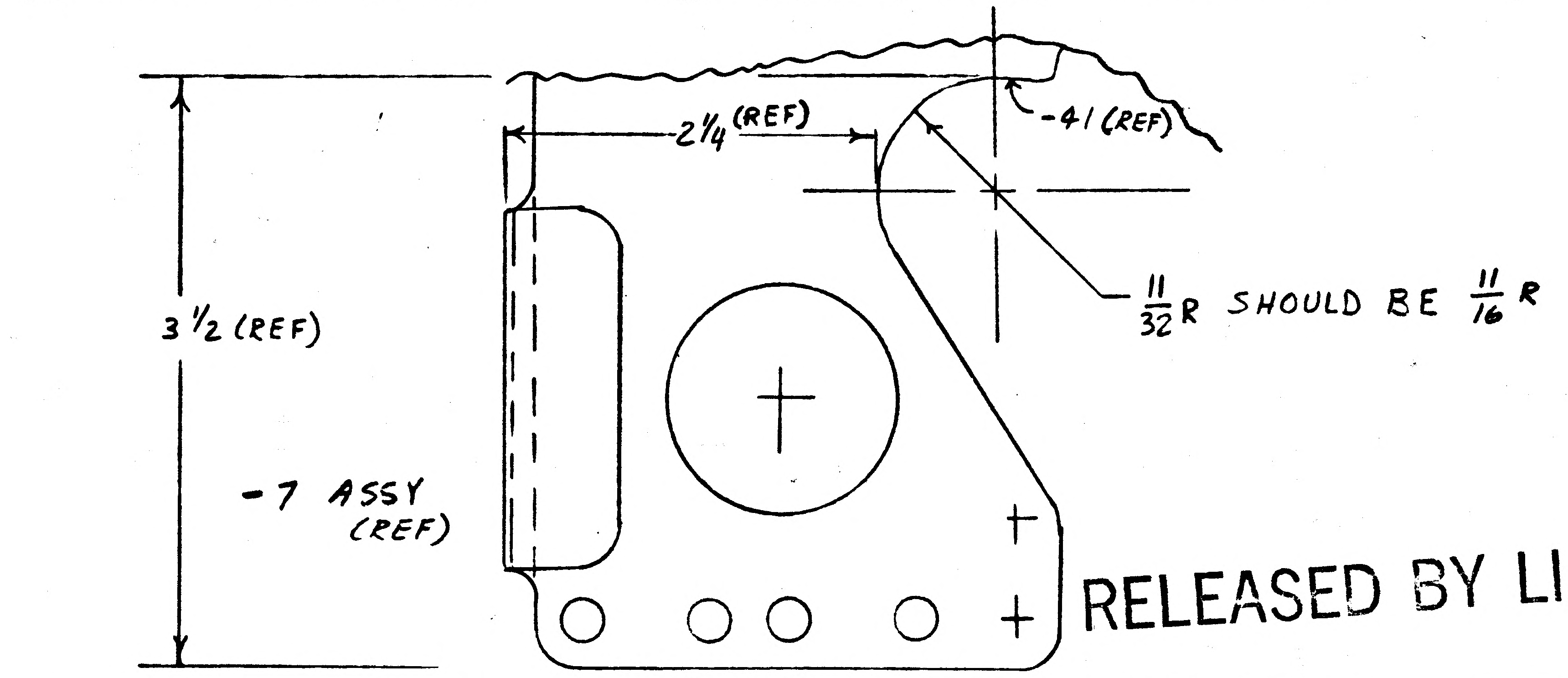
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18279 EO NO. C2
CONTROL INFO NO. LM5-17418

THIS IS A REVISION OF EO C1

F/D ON-41 FOR -7 ASSY 11/32 R SHOULD BE 11/16 R AS SHOWN



RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2319 (5)

REASON FOR EO: INCORRECT DETAIL PART DIM. PART CAN NOT BE MADE TO 11/32 R DIM.

DESCRIPTION OF EO: REF EO C1 F/D ON-41 11/16 R WAS 11/32 R.

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP ✓

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				—	JF	DV		
DATE	12/2/67				11-24-67	11/27	12/2/67	12-2-67
11-22-67	VDI							~~[illegible]~~

PRIORITY: C
DRAWING TITLE: BRACKET ASSY - DESCENT STAGE LM-SLA ANTENNA SWITCH SUPPORT
DRAWING NO. LDW280-18279
EO NO. C2

ISSUED BY LIAISON J. GRASSIANO X86755 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

RELEASED BY LIAISON

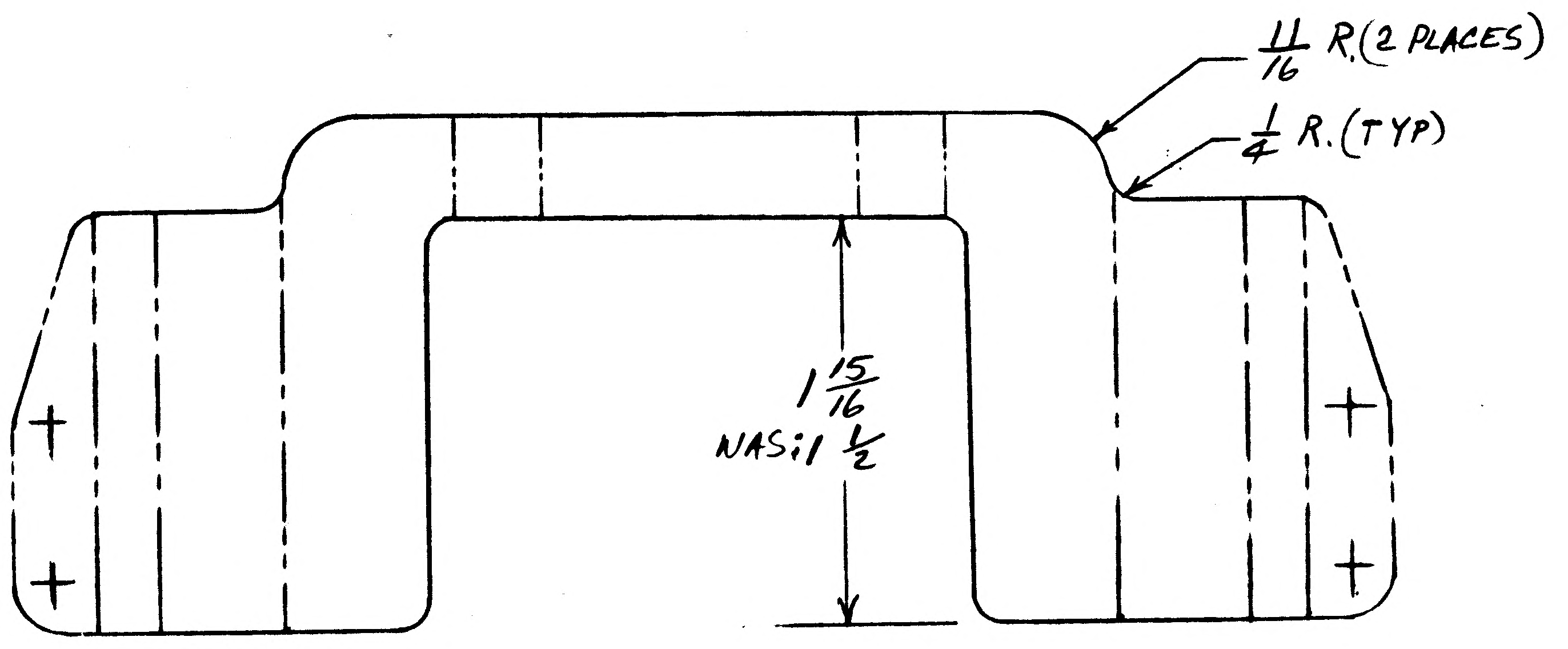
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LDW280-18286 EO NO. A10
CONTROL INFO NO. LM-5-19420

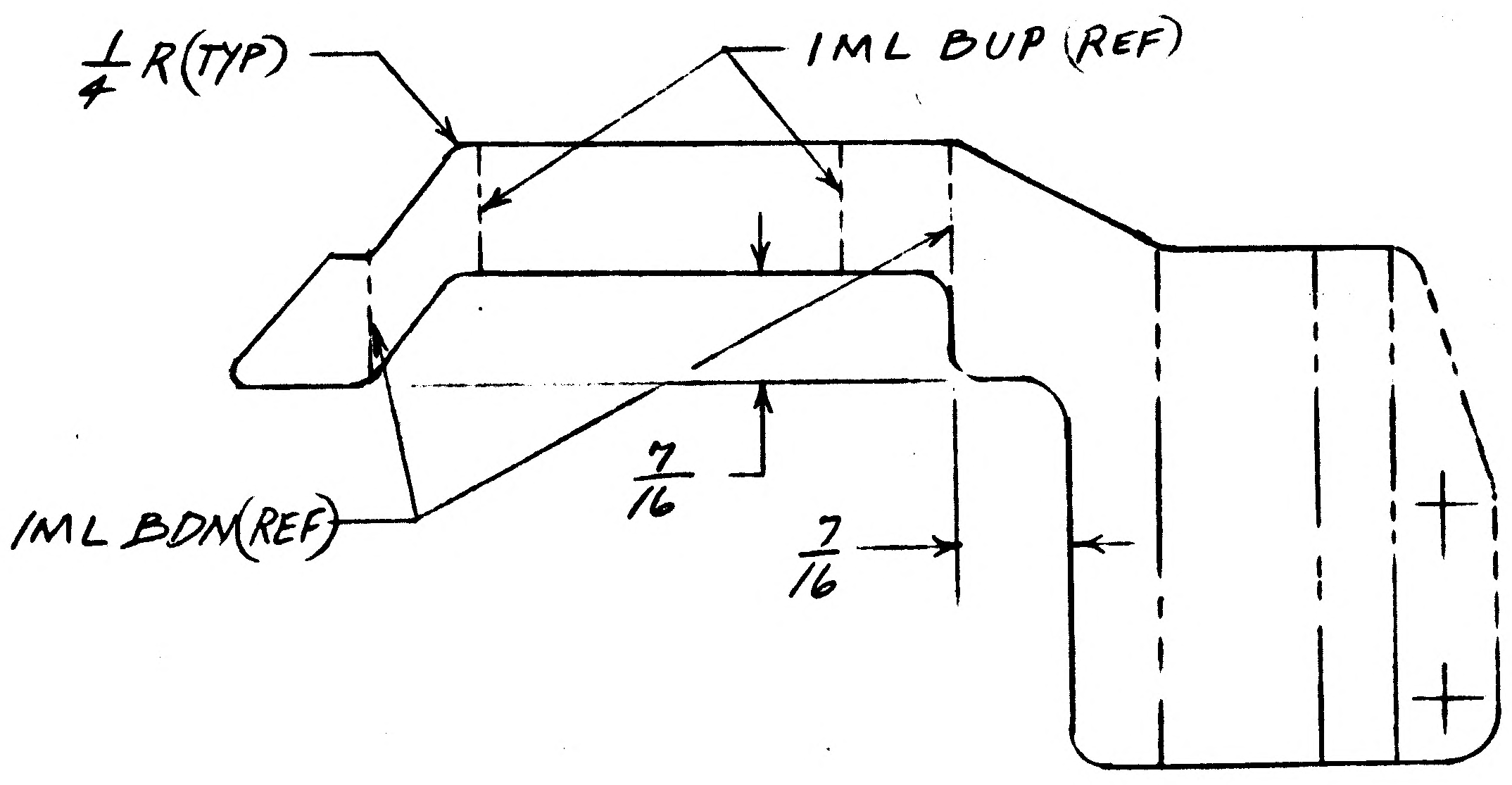
IN FLD/DWG, B/M & M/B

CREATE -19 SAME AS -13 EXCEPT AS SHOWN:



N/A LDW280-53649, QTY(1), EFFECTIVE ON LM-3(33) THRU LM-15(45)
& LFM420-2370-003, LDW420-2370 SER #1
REMOVE -13 FROM LM-3(33) THRU LM-15(45)

CREATE -21 SAME AS -11-1 EXCEPT AS SHOWN:



N/A LDW280-53646, QTY(1), EFFECTIVE ON LM-3(33) THRU LM-15(45)
& LFM420-2370-003, LDW420-2370 SER #1
REMOVE -11-1 FROM LM-3(33) THRU LM-15(45)

DIMENSIONS FOR MANUFACTURING PURPOSES ONLY
DO NOT INCLUDE ON DWG.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1244, CCA 667 (5)

REASON FOR EO: CHANGE REQ'D FOR STRUCTURAL CLEARANCES

DESCRIPTION OF EO: IN FLD, B/M & M/B
CREATED -19 & -21
REMOVE -13 & -11-1

GAEC EO RELEASE: VK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-3(33)	THRU LM-	15(95)
	LFM420	-2370-003	
	LDW420	-2370 SER #1	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK — SCRAP -13 -11-1
APPROVED BY: DATE 3-21-68 VD1 | 3/29/68
SUPPORT | RELIAB. GROUP | GROUP LEADER — | STRESS GROUP 3-25-68 | LIAISON ENGRG CH 3-23-68 | PROJ ENGRG 3/29/68 | GOVT

PRIORITY: C
DRAWING TITLE: BRACKET D/S INTERSTAGE BLANKET SUPPORT EXPLOSIVE BOLT PROTECTION
DRAWING NO.: LDW280-18286
EO NO.: A10

ISSUED BY LIAISON, P. HUSTED, 86755 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1652
CONTROL INFO NO. LDW280B7667

REMOVE LM-10(40) THRU LM-14(44) EFFECTIVITY FROM ALL DASH NOS.* OF THE FOLLOWING DWGS. WHICH HAVE N/A LDW280-23540 FOR LM-10(40).

DWG. NO. *	DWG NOMENCLATURE	CHANGE NO.
LDW280-17644	SEE DWG	C4
-18317		B2
LDW280-18311		B1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD3890 PKG 52 Pg. 3

(5)

REASON FOR EO: REDESIGN OF INTERSTAGE BEAM FOR LARGER TANK

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF. FROM * [illegible] WITH N/A LDW280-23540

GAEC EO RELEASE: 8-22-9 S/C 8/29/9

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
LM		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	8-19-69			8/19/69	8/19/69		8/19/69	8/19/69
	VDI							

PRIORITY C

DRAWING TITLE NOTED ABOVE

DRAWING NO. LEO 280

EO NO. 1652

9-17-69
ISSUED BY W. HOPTON / P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1652
CONTROL INFO NO. LDW280B7667

REMOVE LM-10(40) THRU LM-14(44) EFFECTIVITY FROM ALL DASH NOS.* OF THE FOLLOWING DWGS. WHICH HAVE N/A LDW280-23540 FOR LM-10(40).

DWG. NO. *	DWG NOMENCLATURE	CHANGE NO.
✓ LDW280-17644	SEE DWG	C4
✓ -18317		B2
✓ LDW280-18311		B1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 52 Pg. 3 (5)

REASON FOR EO: REDESIGN OF INTERSTAGE BEAM FOR LARGER TANK

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF. FROM * [illegible] WITH N/A LDW280-23540

GAEC EO RELEASE: 8-27-69 S/C 8/29/9

MODEL	~~PROCURING ACTIVITY NO~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
LM		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	8-19-69			8/13/69	8/14/69		8/19/69	8/19/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 1652

9-17-69
ISSUED BY W. HOPTON / P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18323
EO NO. B7
CONTROL INFO NO. LDW280 B0568

REMOVE LM 6 (36) REQMTS FROM -1 M/B

REMOVE -5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2309

③

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REMOVAL OF WEIGHT	REMOVED LM 6 (36) REQMTS FROM -1 M/B REMOVED -5	12/4/67

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 6 (36)	
		THRU	
		LM 15 (95)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	11/28/67			11-28-67	11/28		11/28/67	12-2-67
B	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB ASS'Y, D/S AFT UPPER DECK	LDW280-18323	B7

11/28
ISSUED BY P. GAUTHIER / P. THORJUSEN
X1153
SECTION VD1
GROUP NO. 335 PL25

01

NAS 9-1100

G 22.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1340
CONTROL INFO NO. LDW280B7427

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18316 ✓	A1	SEE DWG
-18317 ✓	B1	↑
-18324 ✓	A3	
-18325	B1	
-18326	B1	
-18337	B1	
-18332	B2	
-18340	A5	
-18342	A4	↓
LDW280-18343	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: VK 4/16/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONT' UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1340

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

G 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1340
CONTROL INFO NO. LDW280B7427		

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18316 ✓	A1	SEE DWG
-18317 ✓	B1	↑
-18324 ✓	A3	
-18325 ✓	B1	
-18326	B1	
-18330	B1	
-18332	B2	
-18340	A5	
-18342	A4	↓
LDW280-18343	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3587 PKG 54 PG. 3	CCA 1821	(5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 4/16/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GRP.	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1340

052869 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

G 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1340
CONTROL INFO NO. LDW280B7427

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18316 ✓	A1	SEE DWG
-18317 ✓	B1	↑
-18324 ✓	A3	
-18325 ✓	B1	
-18326 ✓	B1	
-18330	B1	
-18332	B2	
-18340	A5	
-18342	A4	↓
LDW280-18343	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1340

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

G 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. /340
CONTROL INFO NO. LDW280B7427

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18316	✓	A1	SEE DWG
-18317	✓	B1	
-18324	✓	A3	
-18325	✓	B1	
-18326	✓	B1	
-18330	✓	B1	
-18332	✓	B2	
-18340	✓	A5	
-18342		A4	
LDW280-18343		A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ · RECORD EO
DISPOSITION OF PARTS: REWORK · SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1340

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280 18353

EO NO. A2

CONTROL INFO NO. LDW280A9947

ADD -15 AS SHOWN BELOW

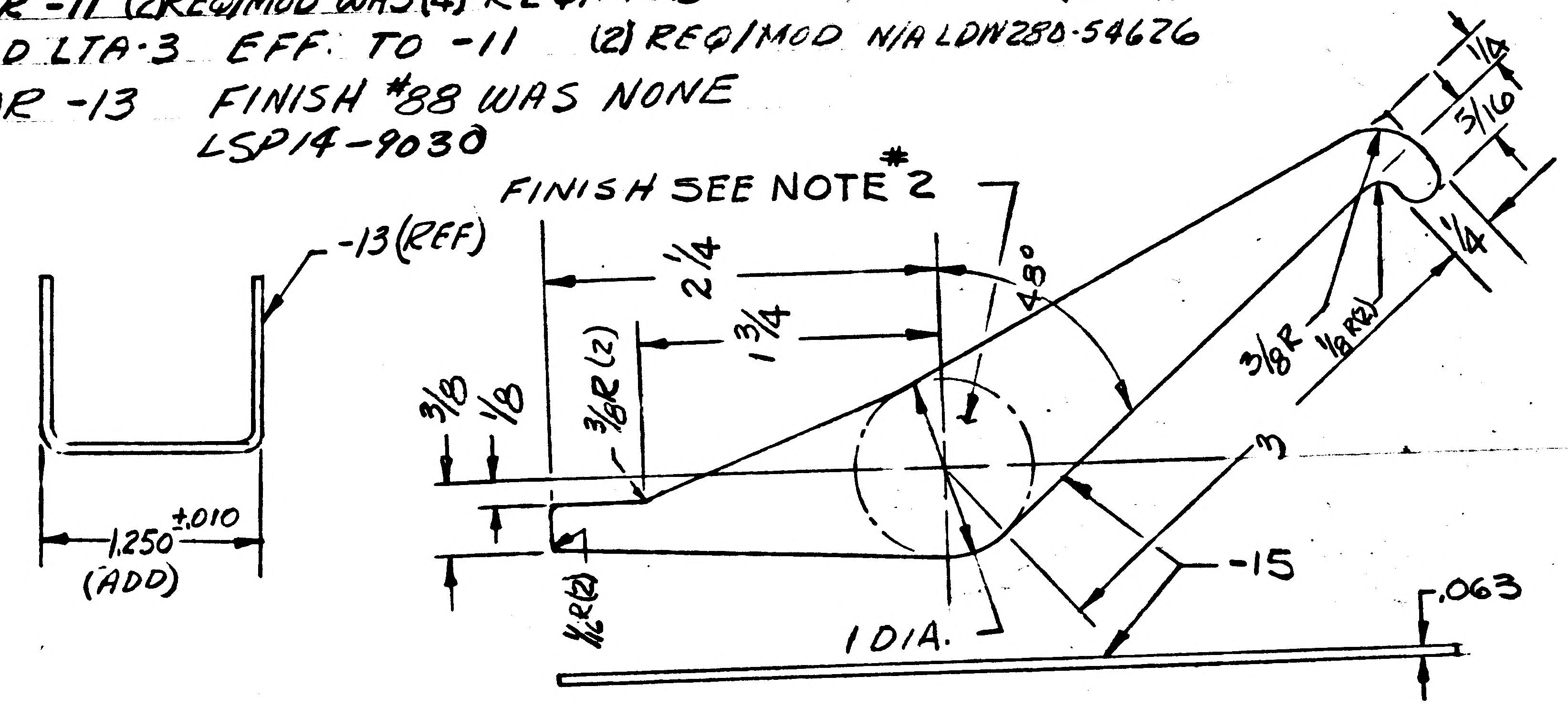
-15 EFF LTA-3 LM-4 THRU LM-15 & DVT N/A LDW280-54626 (2)REQ/MOD

FOR -11 (2)REQ/MOD WAS (4) REQ/MOD

ADD LTA-3 EFF. TO -11 (2) REQ/MOD N/A LDW280-54626

FOR -13 FINISH #88 WAS NONE

LSP14-9030



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA 586

REASON FOR EO: ADDED POSITIVE LOCK FOR ESCAPEMENT MECHANISM.

DESCRIPTION OF EO: ADDED -15 & LTA-3 TO -11 EFF
FOR -11 (2)REQ/MOD WAS (4) REQ/MOD
FOR -13 ADDED 1.250±.010 DIM & FINISH #88 WAS NONE

Ⓡ GAEC EO RELEASE: JK 10/24/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13), LM-4(34)	
		THRU LM-15(45)	
		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	APPROVED BY			GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	10/20/67			10/20/67	11/1/67		10/20/67	10/20/67
P	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY: C

DRAWING TITLE: PLATE D/S ESCAPEMENT MECH.

DRAWING NO.: LDW280-18353

EO NO.: A2

10/30/67

ISSUED BY R CLARK / J STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 947
CONTROL INFO NO. LDW280B3382

FOR THE FOLLOWING PARTS, ADD TM-5/R$^{(65)}$REQMTS, N/A$^{(5)}$ LDW280-54626 FOR THE QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD.	CHG. NO.
LDW280M17749-15	SEE DWG	2	A4
M17749-16		2	
M17750-11		4	A4
M17751-13		4	A3
M17879-11		4	A1
M17757-7		4	A7
M17823-11		4	A2
M17991-11		4	A1
M17992-11		4	A2
M17824-11		4	A1
M17827-11		8	A1
-18415-11		8	A1
-18413-11		4	A1
M17832-11		4	A2
-18420-23		4	A4
-18420-11		2	
-18420-12		2	
-18420-13		2	
-18420-14		2	
-18420-24		4	
-18353-11		4	A5
-18353-13		1	
-18353-15		4	
-18355-11		20	A4
-18352-11		4	A5
LDW280-18411-21	SEE DWG	4	A8

PART NO. *	TITLE	REQD/MOD	CHG. NO.
LDW280M17786-11	SEE DWG.	4	A4
M17786-13		4	
M17995-11		4	A1
M17996-11		4	A1
M17993-11		4	A1
M17993-13		4	
M17994-11		4	A1
M17754-11		4	A4
M17755-11		4	A3
M17756-11		4	B4
M17758-11		2	A3
M71502-11		2	B1
M17760-13		4	B1
M17773-11		8	A3
M17774-13		4	B1
P18354-11		2	A4
LDW280P18421-11	SEE DWG	12	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3025 CCA 586 PKG 2F (5)

GAEC C EO RELEASE: JK 5/16/68

REASON FOR EO: ADD TM-5/R(65)REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65)REQMTS.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVIS. DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD. (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JHS			GW	WJH		RAP	JM
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-16-68

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 947

ISSUED BY 5-17-68 J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1360
CONTROL INFO NO. LDW280B7428

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18344 ✓	A4	SEE DWG.
-18346 ✓	A4	↑
-18348 ✓	A3	
-18349 ✓	A9	
-18350 ✓	A5	
-18351 ✓	A3	
-18352 ✓	B1	
-18353 ✓	B1	
-18355	B1	↓
LDW280 -18356	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG54 PG4 CCA1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: 4/18/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				PJF	WJH			
DATE	4/18/69			4/8/69	4/8/69		4/9/69	4/18/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1360

052869 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00,1.01 1.10 2.00 3.00	5A 5C 6C	N		✓		EOA1 LCD 1433 CCA 586	ADDED -21, -23, -25, -26 & -27. REMOVED -11, -15 & -17 (ADDED SH 1.10 & 1.01)	LM-4 THRU LM-15, DVT		-11, -15 -17	LEVINE 6-6-68 E.C.G.		
	2	1.00,1.01		D		✓		LEO280-783 LCD 1433 CCA 586	ADDED LTA-3(13) EFF. TO -13, -19, -21, -25, -26 & -27	LTA-3	✓				
	3	1.01		B		✓		EO A3 LCD 1433 CCA 586	FOR -27: REMOVED LM-4 (34) THRU LM-15 (45) & DVT(70) REQMTS.	LM-4 THRU LM-15, DVT		✓			
	4	1.00, 1.01, 2.00, 3.00	5A 5C 7C	B		✓		EOA4 LCD 1433 CCA 586	ADDED -29, -31, -33 & -34. REMOVED -21, -25, -26 & -14. ADDED LTA-3(13) EFF. TO -23. REMOVED LM-4 (34) THRU LM-15 (45) & DVT (70) EFF. FROM -13.	LM-4 THRU LM-15, DVT, LTA-3		-21, -26, -25, -14			
	5	3.00	5C	D		✓		EOA5 LCD 1433 CCA 586	ON -33 & -34: .127-.133 DIA HOLE WAS .097-.102 DIA HOLE (1)		✓				
	6	3.00	4A			✓		EOA 6 LCD 1433 CCA 586	FOR -31: 1 11/16 WAS 2 1/4, .110 WAS .075, 9/32 WAS 5/16 & .040-.045 (#59 DR)(2 HOLES - 2 PLACES) WAS .019-.024 (#76 DR) (2 HOLES - 4 PLACES) (REF EOA4)						
	7	1.00, 1.01 2.00, 3.00		G		✓		EOA7 LCD 1433 CCA 586	ADDED -31-1, -35, -36 & -37. ON -31: REMOVED LM-4 (34) THRU LM-15(45) & DVT (70). ON -33 & -34: 1 EA REQD/MOD WAS 2 EA REQD/MOD	LM-4 THRU LM-15, DVT					
	8	1.00 1.01				✓		LEO280-969 LCD 3075 CCA 586	ON -13, -19, -31-1, -23, -33, -34, -35, -36 & -37: ADDED TM-5/R(65) REQMTS.	TM-5/R	NOT	REQD			
	9	1.00		G		✓		EOA9 LCD1433 LCD3075 CCA586	FOR -34(1) REQD/VEH (WAS 2 REQD/VEH)	LM-4(34) THRU LM-15(45) DVT(70) TM-5/R(65)		✓ H.D.	GEORGE F. CHAIN 7-8-68		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS						
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18356	A

Ⓐ

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1337
CONTROL INFO NO. LDW280B7429

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18358 ✓	A1	SEE DWG
-18359	A1	
-18360	A1	
-18361	A1	
-18362	B1	
-18363	A2	
-18364	A3	
-18365	A7	
-18367	B1	
LDW280-18368	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3587 PKG 54 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: 4/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				Olt	WJH			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1337

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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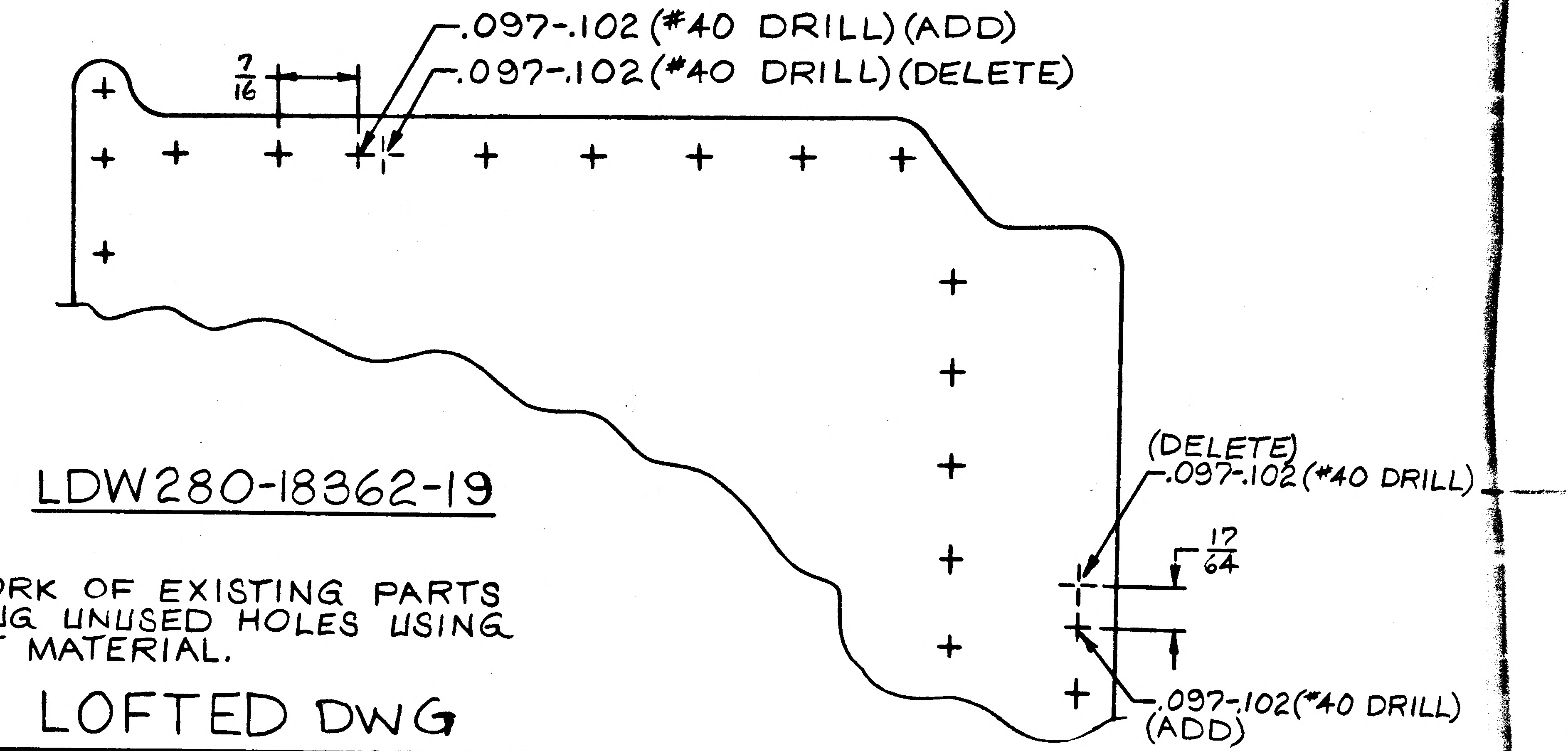
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18362	EO NO.	A4
CONTROL INFO NO.	LM-2-4534		



LDW280-18362-19

FOR REWORK OF EXISTING PARTS FLUSH PLUG UNUSED HOLES USING "AD" RIVET MATERIAL.

LOFTED DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA586 (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
EXISTING HOLE PATTERN INTERFERES WITH LDW280M-17782 SUPPORT FITTING	IN FLD/DWG FOR -19, RELOCATED #40 DRILL (2 PLACES).	VC 02825

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D (13) LM-4 (34) THRU LM-15 (45)	
		DVT (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				—				
DATE	3/1/68			—	2/28/68	2/26/68	3/4/68	2-28-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB~DESCENT STAGE~SCIENTIFIC EQUIP. BAY~LANDING RADAR SUPPORT	LDW280-18362	A4

ISSUED BY LIAISON J. MALONEY 2/27/68 x3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO28U | EO NO. 961
CONTROL INFO NO. LDW280B3377

FOR THE FOLLOWING PART NO'S ADD TM-5/R$^{(65)}$ REQMTS FOR THE N/A'S INDICATED FOR THE QUANTITIES NOTED:

		N/A'S & QTY REQD/ASSY			
PART NO. *	TITLE	LDW280-54633	LDW280-54566	LDW280-547[illegible]2	CHG. NO.
LDW280M17829-13	SEE DWG.	2			B1
M17865-13		1			A2
-18418-15		2			A4
-18492-11		1			A1
-18500-11		1			A1
M17837-11		2			A2
M17864-11		1			A3
M17866-11		1			A1
M17867-11		1			A2
-18362-17			1		A5
-18362-19			1		
-18362-21			1		
-18362-25			1		
M17780-11			1		A1
-17880-15			1		B2
-17880-19			1		
-17878-19			1		B3
-17623-21			2		C2
-18417-11			1		A1
-18363-11			1		A1
-18363-13			1		
-18363-15			1		
-18363-17			5		
-18363-19			1		
M17624-1			1		B3
M17779-11			1		A4
-17739-31				2	C7
-17739-33				3	
-18283-11				1	A7
M17544-9				1	B3
M17544-11				1	
M17670-5				1	D8
M17671-1				1	B8
M17730-11				1	A6
M17731-11				1	A6
M17732-11				1	A6
M17733-11				1	A7
LDW280M17872-11	SEE DWG.			1	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3075 CCA 586 PKG 2L, 2M, 2N (5)

REASON FOR EO: ADD TM-5/R$^{(65)}$ REQMTS

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC EO RELEASE C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD. (REWORK / SCRAP)

APPROVED BY	JWS			GH BSt	WJH		JAP	JM
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-21-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO280
EO NO: 961

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. /337
CONTROL INFO NO. LDW280B7429

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. ✱

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18358 ✓	A1	SEE DWG
-18359 ✓	A1	
-18360 ✓	A1	
-18361 ✓	A1	
-18363 ✓	B1	
-18363	A2	
-18364	A3	
-18365	A7	
-18367	B1	
LDW280-18368	B1	SEE DWG

✱ APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM ✱

GAEC EO RELEASE: [illegible]

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: /337

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18365 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	DVT (70)	1 EA
LFM 200		SEE NOTE 2	4 EA
LM		LM-14 (44)	4 EA
LM		THRU	
LM	LDW280-66663	LM-6 (36)	4 EA

PART NO. LDW280-18365-23 & -24

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52663	LM-4 (34)	4
		LM-3 (33)	4
		LM-2 (32)	4
LM	LDW280-52663	LM-1 (31)	4
LFM 32	LDW280-23663	LTA-5 (15)	4

PART NO. LDW280-18365--15 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	DVT (70)	1
LFM 200		SEE NOTE 2	4
LM		LM-14 (44)	4
LM		THRU	
LM	LDW280-66663	LM-6 (36)	4

PART NO. LDW280-18365-15-1 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52663	LM-4 (34)	4 EA
LM	LDW280-52663	LM-3 (33)	4 EA
LM	LDW280-52663	LM-2 (32)	4 EA

PART NO. LDW280-18365-11 & -12

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	DVT (70)	1 EA
LFM 200	LDW280-66663	SEE NOTE 2	4 EA
LFM 32	LDW280-23663	LTA-5 (15)	4 EA
LM	LDW280-23663	LM-1 (31)	4 EA
	LDW280-66663	LM-14 (44)	4 EA
		LM-13 (43)	4 EA
		LM-12 (42)	4 EA
		LM-11 (41)	4 EA
		LM-10 (40)	4 EA
		LM-9 (39)	4 EA
		LM-8 (38)	4 EA
		LM-7 (37)	4 EA
LM	LDW280-66663	LM-6 (36)	4 EA
LM	LDW280-52663	LM-4 (34)	4 EA
LM	LDW280-52663	LM-3 (33)	4 EA
LM	LDW280-52663	LM-2 (32)	4 EA

PART NO. LDW280-18365-13, -17, 19 & -21 — GAEC SCH NO. 52

WORK PKG FUNCTION NO. 111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00	3.00				
REV	A	A		A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -24

GRUMMAN REF INFO A

PRIM NO. 207 — K (001) ME-1A-5/14/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE ✓

CLASS I ENGRG CHANGE

LCD 1932

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	S. JOHNSON 7/29/67	RELIABILITY	
LAYOUT BY	ZEMAN		
CHECKED BY	D. FASS 8-1-67		
GR LEADER	8/2/67		
VEH DES INT	V J Pusateri 8/2/67		
STRUCTURES	WJH 8/3/67	PROJ ENGR	8/3/67
STRUCTURES	JEF 8/3/67	REL GROUP	J Tagliavia 8/3/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE-PROPELLANT QUANTITY GAGE COVER

SIZE B — CODE IDENT NO. 26512 — LDW280-18365 A

SCALE NONE — SHEET 1.00 OF 4

ENG 77.1 12-65

7/28

01

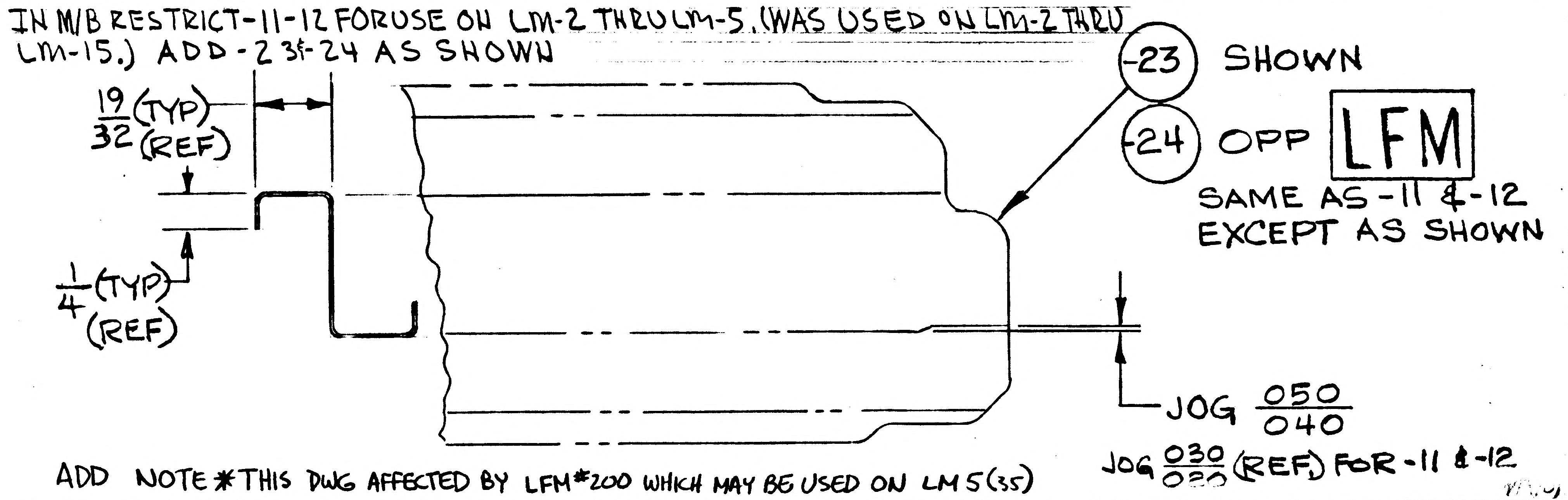
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18365		EO NO. A5
CONTROL INFO NO. LDW280-B-4123		

IN M/B RESTRICT -11-12 FOR USE ON LM-2 THRU LM-5. (WAS USED ON LM-2 THRU LM-15.) ADD -23 & -24 AS SHOWN



ADD NOTE * THIS DWG AFFECTED BY LFM#200 WHICH MAY BE USED ON LM 5(35)

EFF FOR -23 & -24 - LM-6 THRU LM-15, LFM200 (LM-5), 4 EA & DVT(70) 1 EA. N/A LDW280-66663

IN M/B FOR -13, -151, -17, -19 & -21

EFF LM-6 THRU LM-15 REVISE N/A: LDW280-66663 WAS LDW280-52663,

FOR -13-151, -17, -19 & -21 ADD LFM200(LM-5) 4 EA & DVT(70) 1 EA. N/A LDW280-66663

* USE NEXT AVAIL NOTE #.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2965 PKG. 1 (CCA 1235)	(5)

REASON FOR EO	DESCRIPTION OF EO	(R) GAEC EO RELEASE
REDESIGN B.H.S. FOR D/E THRUST DECAY	RESTRICTED -11 & -12. WAS USED ON LM-2 THRU LM-15. ADDED -23 & -24 FOR -13, -151, -17, -19 & -21 N/A LDW280-66663 WAS LDW280-52663 & ADDED LFM200 (LM-5) & DVT 70 EFF. ADDED NOTE *	VC 8/9

MODEL	EFFECTIVITY: EI ~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM200	LM-5(35)	
LM		LM-6(36) THRU LM-15(45) & DVT(70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY								Bauman
DATE	7/9/68	7/10/68		7/9/68	7/14/68		7/16/68	8-8-68
	VDI	THERMO ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STIFFENER DESCENT STAGE - P.Q. GAGE COVER	LDW280-18365	A5

7-12-68
ISSUED BY R STILWELL/P THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 1

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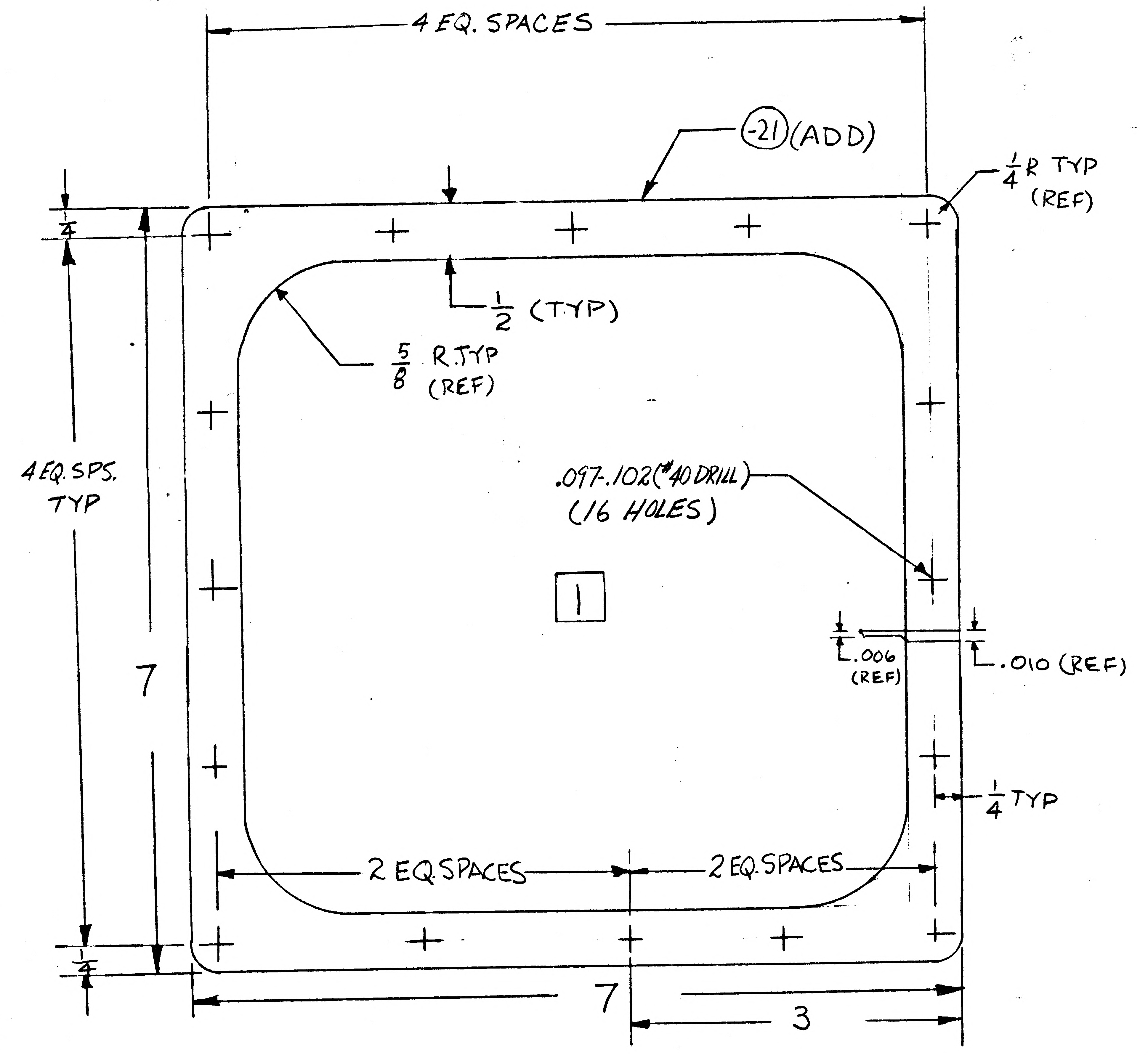
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18367	EO NO. A4
CONTROL INFO NO. LDW280B1936	

IN M/B ON -13¢-19 RESTRICT USE TO LM-2(32) THRU LM-4(34)
ADD -21 IDENTICAL TO -13 EXCEPT AS SHOWN
FOR -21, EFF: LM-5(35) THRU LM-15(45)
N/A LDW280-51517 4 EA.


4 EQ. SPACES
-21 (ADD)
1/4 R TYP (REF)
1/2 (TYP)
5/8 R TYP (REF)
4 EQ. SPS. TYP
.097-.102 (#40 DRILL) (16 HOLES)
1
.006 (REF)
.010 (REF)
1/4 TYP
1/4
7
2 EQ. SPACES
2 EQ. SPACES
1/4
7
3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2532	PK6 / ok

REASON FOR EO: PQGS ACCESS DOOR REDESIGN

DESCRIPTION OF EO: ADDED -21
RESTRICTED -13¢-19 (WAS) USED LM-2(32) THRU LM-15(45)

GAEC EO RELEASE: 3/30/68 (5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-13 -19 ✓

APPROVED BY									
DATE	3/21/68			3/20/68	3/22/68		3/22/68	3/29/68	
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB D/S - PQGS ACCESS COVER	LDW280-18367	A4

G.2
ISSUED BY D. SHAPIRO / P. THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25
CDR 032868

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 957
CONTROL INFO NO. LDW280B 3197

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMTS
N/A LDW280-23578 FOR QUANTITIES NOTED:

DRAWING NO *	TITLE	REQD/MOD	CHANGE NO.	
LDW280-18381-13	SEE DWG	2	A4	✓
-17882-11		1	B3	✓
-17882-13		1		
-17882-15		1		
-17882-19		2		
-17882-21		1		
-17883-11		1	B6	✓
-17883-13		1		
-17883-15		2		
-17883-17		2		
-17623-13		4	C1	✓
-17623-15		1		
-17623-23		1		
-18370-17		1	A2	✓
LDW280 M17628-3	SEE DWG	1	B4	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2P (5)

GAEC EO RELEASE C JK 5/18/8

REASON FOR EO: ADD TM-5/R(65) REQMTS

DESCRIPTION OF EO: ON-* ADDED TM-5/R(65) REQMTS

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D

APPROVED BY: VDI — DATE 5/13/68; GROUP LEADER 5-13-68; STRESS GROUP; PROJ ENGRG 5/13/68; 5-18-68

PRIORITY: C

DRAWING TITLE: SEE DRAWING

DRAWING NO.: LEO 280

EO NO.: 957

5-17-68
ISSUED BY T. COTTER x3352 / P THORILSEN SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1647
CONTROL INFO NO. LDW280B - 8453

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
✓	LDW280 - 17712	SEE DRAWING	LDW280-54575	B3
✓	17714		-54575	D4
✓	17442		-54575	B7
✓	18346		-54575	A6
✓	18356		-54575	B3
✓	17294		-54575	C3
✓	18370		-23528 -54575	A6
	18372		-54575	A6
	18349		-54575	B2
	18379		-54575	A8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 9 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: SB 8-29 / JK 8/28/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

APPROVED BY: VDI — DATE 8-8-69; GROUP LEADER 8/4/69; STRESS GROUP 8/14/69; PROJ ENGRG 8/12/69 8/28/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1647

8-27-69
ISSUED BY F. OLIVERI EXT 86098 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1647
CONTROL INFO NO. LDW280B - 8453

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
✓	LDW280 - 17712	SEE DRAWING	LDW280-54575	B3
✓	17714		-54575	D4
✓	17442		-54575	B7
✓	18346		-54575	A6
✓	18356		-54575	B3
✓	17294		-54575	C3
✓	18370		~~-23578~~ -54575	A6
✓	18372		-54575	A6
	18349		-54575	B2
	18379		-54575	A8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 9

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

(5)

GAEC EO RELEASE: SB 8-29; JK 8/28/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY: VDI; SUPPORT; RELIAB. GROUP; GROUP LEADER 8/1/69; STRESS GROUP W/A 8/1/69; LIAISON ENGRG; PROJ ENGRG 8/1/69 8/26/69

DATE: 8-8-69

PRIORITY: C

DRAWING TITLE: SEE DRAWINGS

DRAWING NO.: LE0280

EO NO.: 1647

8-27-69
ISSUED BY F. Olivieri EXT 86098
SECTION VDI
GROUP NO. 335
PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

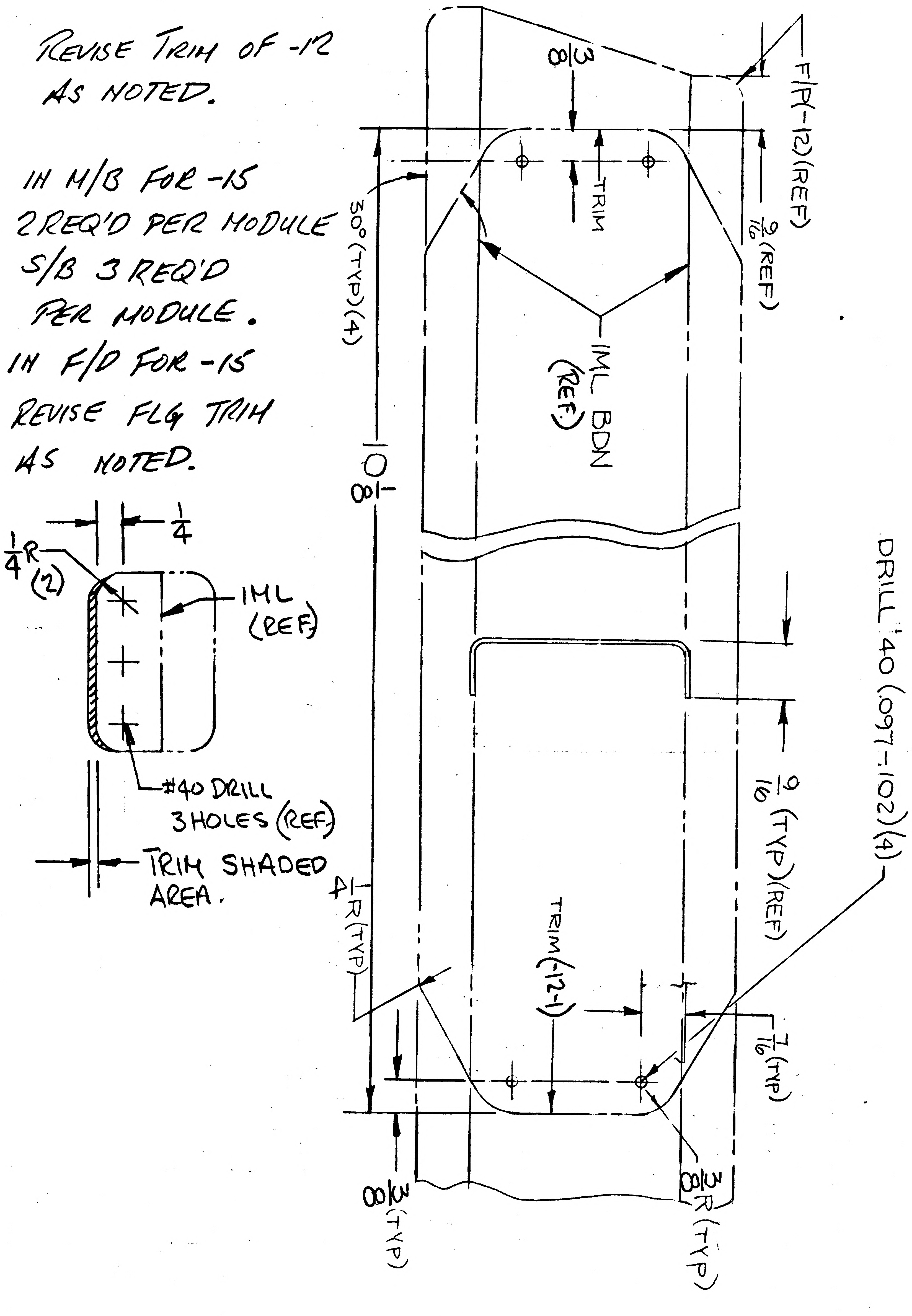
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18375	EO NO.	A1
CONTROL INFO NO.	LDW280B2502		

REVISE TRIM OF -12 AS NOTED.

IN M/B FOR -15 2 REQ'D PER MODULE S/B 3 REQ'D PER MODULE.

IN F/D FOR -15 REVISE FLG TRIM AS NOTED.



F/P(-12)(REF)
9/16 (REF)
3/8
TRIM
IML BDN (REF)
30° (TYP)(4)
10 1/8
DRILL #40 (.097-.102)(4)
9/16 (TYP)(REF)
7/16 (TYP)
TRIM (-12-1)
3/8 R (TYP)
3/8 (TYP)
1/4 R (TYP)
1/4
1/4 R (2)
IML (REF)
#40 DRILL 3 HOLES (REF)
TRIM SHADED AREA.

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NAS 9-1100

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD1433 CCA586 PKG13									(5)
REASON FOR EO				DESCRIPTION OF EO											GAEC EO RELEASE
RECONFIGURATION OF PULLEY SUPT MOUNTING BRACKETS				REVISED TRIM OF -12. IN M/B FOR -15 (3) REQD PER MODULE WAS (2) REQD PER MODULE & REVISED FLANGE TRIM.											VK 3/18/68
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JRS			PST			
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	3/14/68			3/13/68	3/14/68		3/15/68 3-18-68
LM		LM-4(34) THRU		REVISE DWG	RECORD EO	REWORK	SCRAP	G	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
		LM-15(45)		PRIORITY	DRAWING TITLE							DRAWING NO.			EO NO.
LM		DVT(70)		C	CHANNEL~DESCENT STAGE~SCIENTIFIC EQUIP BAY~UPPER DECK CABLE BRACKET SUPT							LDW280-18375			A1

CDR 3-15-68
ISSUED BY J. BELEV / HANSMANN X3352 SECTION VEH. DES. INT GROUP NO. 335 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 950
CONTROL INFO NO. LDW280B 3380

ENG 32.2 REV 3-65

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMTS, N/A LDW280-54679 FOR QUANTITIES NOTED

DRAWING NO. *	TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18374-19	SEE DWG	4	A2 ✓
-21		1	
-23		1	
-25		1	
-18374-27		1	
-18375-11		1	A2 ✓
-12		1	
-13		2	
-14		2	
-15		2	
-17		4	
-18375-19		1	
-18458-11		1	A4 ✓
-13		1	
-17		1	
-19		1	
-18458-23		1	
-18460-21		1	A3
-23		1	
-25		1	
-17		1	
-18460-19		1	
-18461-21		1	A4
-22		1	
-13		2	
-15		2	
-17		1	
-18461-19		1	
-18469-11		1	A1
-13		2	
-15		2	
-17		2	
-18469-19		2	
-18470-11		1	A3
-18470-13		1	
LDW280-18470-15	SEE DWG	1	
LDW280-18470-19	SEE DWG	1	
LDW280-18470-21	SEE DWG	1	

DRAWING NO. *	TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18489-11	SEE DWG	1	A2
-13		1	
-15		1	
-17		1	
-18		1	
-18489-19		1	
-18506-11		1	A1
-13		1	
-15		1	
-17		1	
-18506-19		2	
-18513-11		1	A2
-13		1	
-15		1	
-17		1	
-18513-19		1	
-18560-11		1	A1
-13		1	
-15		1	
-17		1	
-18560-19		1	
-18561-11		1	A2
-13		1	
-15		1	
-17		1	
-18561-19		1	
-71512-11		1	A1
-13		2	
-15		1	
-17		1	
-71512-18		1	
M17884-13		1	A5
M17885-13		1	A3
M17890-11		1	A2
M17969-11		1	A1
M17970-11		1	A1
M17971-11		1	A1
M17972-11		1	A1
LDW280M17973-11	SEE DWG	1	A1

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3075 CCA 586 PKG 2H (5)

REASON FOR EO: ADD TM-5(65) REQMTS.

DESCRIPTION OF EO: ON - * ADDED TM-5/R(65) REQMTS

GAEC EO RELEASE: JK 5/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D | REWORK | SCRAP
APPROVED BY: JHS | DATE: 5/13/68 | VDI
SUPPORT | RELIAB. GROUP | GROUP LEADER: 5-13-68 | STRESS GROUP: 5/13/68 | LIAISON ENGRG | PROJ ENGRG: 5/13/68 | 5-17-68

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 950

5-17-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1650
CONTROL INFO NO. LDW280B 8 443

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/ LDW 280 -18374	SEE DRAWING	LDW280-54679	A6
/ -18375		-54679	A6
-18513		-54679	A8
-18489		-54679	A5
-18460		-54679	A6
-18461		-54679	B2
-18469		-54679	A4
-18470		-54679	A6
-18506		-54679	A5
M 17884		-54679	B2
-18560		-54679	A5
LDW 280 -18561		-54679	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 6+7 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: Sab 8-26; JK 8/29/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1	(460)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PSA				WJA			
DATE	8-8-69			8/11/69	8/12/69		8/12/69	8/28/69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1650

8-26-69
ISSUED BY A. FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 955
CONTROL INFO NO. LDW280B3376

FOR THE FOLLOWING PARTS ADD TM-5/R (65) REQUIREMENTS, N/I: LDW280-54577 FOR QUANTITIES NOTED.

DRAWING NO.(*)	TITLE	REQ'D.	CHG. NO.
LDW280-17713-15	SEE DRAWING	2	C6
-17713-17		1	
-17713-18		1	
-17713-19		1	
-17713-20		1	
-17715-11		1	B6
-17715-13		1	
-18348-11		1	A2
-18348-13		1	
-18348-14		1	
-18348-15		1	
-18348-17		1	
-18348-18		1	
-18348-19		2	
LDW280-18378-13	SEE DRAWING	1	A3

01

NAS 9-1100

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3075 CCA 586 PKG 2R (5)

REASON FOR EO: ADD TM-5/R(65) REQUIREMENTS

DESCRIPTION OF EO: ON - * ADDED TM-5/R(65) REQUIREMENTS

GAEC EO RELEASE: 5/18

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY		SUPPORT	REL'AB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	5/13/68			5-13-68	5/		5/13/68	5-18-68
	V.D.I.							

PRIORITY: C

DRAWING TITLE: SEE DRAWING

DRAWING NO.: LE0280

EO NO.: 955

5-17-68
ISSUED BY E. RANSOM / G. HANSMANN X3352 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280 EO NO. 1552
CONTROL INFO NO. LDW280-8113

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18365	SEE DWG	B1
✓ 368		B2
✓ 369		A6
✓ 370		A5
✓ 372		A5
✓ 374		A5
✓ 375		A5
✓ 378		A5
379		A7
LDW280-18380	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 32 & 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

Ⓡ GAEC EO RELEASE: SdB 8-13-69; JK 8/15/9

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	PSJ				N			Bauman
DATE	7-29-69			7/29/69	8/2/69		8/2/69	8/14/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	P O ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1552

8-26-69 ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1641
CONTROL INFO NO. LL 280B 8441

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
1	LDW 280 -	SEE DRAWING	LDW280	
1	-17882		-23578	B6
1	-17883		-23578	C3
1	M17628		-23578	C2
1	-18381		-23578	A7
1	-17713		-54577	D3
1	-17715		-54577	C3
1	-18348		-54577	A5
1	-18378		-54577	A6
1	-18616		-54679	A2
	LDW 280 - 71512		LDW 280 -54679	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 4, 5, 6, 7, 8 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: 8-29-69
JK 8/28/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3 DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	8-8-69			8/?/69	8/?/69			8-27-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1641

8-26-69
ISSUED BY A. FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1372
CONTROL INFO NO. LDW280B7430

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18369 ✓	A5	SEE DWG
-18370 ✓	A4	↑
-18372 ✓	A4	
-18374 ✓	A4	
-18375 ✓	A4	
-18378 ✓	A4	
-18379 ✓	A6	
-18380	A3	
-18381	A5	↓
LDW280 -18382	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: VK 4/22/

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	DEPT
APPROVED BY				PSt	WH			
DATE	4/1/69			4-2-69	4/8/69		4/9/69	4/21/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1372

ISSUED BY 052869 MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

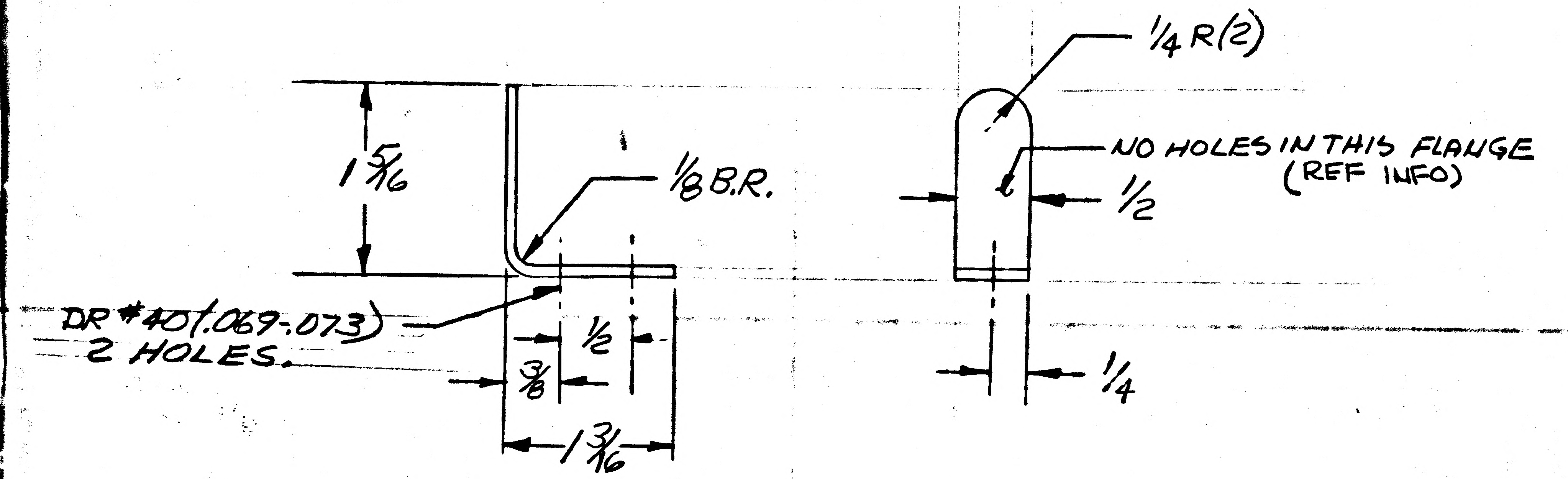
01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18380 | EO NO. A1
CONTROL INFO NO. LM-2-4465

IN FLD & BM ADD -23 SAME AS -15 EXCEPT AS SHOWN BELOW.


1/4 R(2)
NO HOLES IN THIS FLANGE (REF INFO)
1/2
1/4
1 5/16
1/8 B.R.
DR #40 (.069-.073) 2 HOLES.
1/2
3/8
1 3/16

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO PROVIDE BACKUP FOR TRIMMED TAB.

DESCRIPTION OF EO: ADDED -23

GAEC EO RELEASE: (2)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	THRU
		LM-15 (45)	, LTA-3 (13)
		& DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REWORK | REQD SCRAP

APPROVED BY	JAP			—			JAP	
DATE	2/10/68			—	2/5/68	2/5/68	2/10/68	2-6-68
	VEII	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: WEB DESCENT STAGE SCIENTIFIC EQUIP. BAY-LWR DECK
DRAWING NO.: LDW280-18380
EO NO.: A1

ISSUED BY LIAISON J. KOSLOSKI X3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1552
CONTROL INFO NO. LDW 280B 8113		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18365	SEE DWG	B1
✓ 368		B2
✓ 369		A6
✓ 370		A5
✓ 372		A5
✓ 374		A5
✓ 375		A5
✓ 378		A5
✓ 379		A7
✓ LDW280-18380	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 Pg 32 & 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE: ®
SalB 8-13-69
JK 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY						
✓ REVISE DWG / RECORD EO	NOT REQ'D REWORK / SCRAP					N		Bauman
		DATE	7-29-69			7/29/69	8/2/69	7/29/69	8/14/69
			VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1552

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1638
CONTROL INFO NO. LDW280B 0.34

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/ LDW 280 -17711	SEE DRAWING	LDW280-54576	D3
/ -17792		-54576	C3
/ -18340		-54576	A7
/ -18342		-54576	A6
/ -18343		-54576	A5
/ -18344		-54576	A6
/ -18380		-54576	A5
-18386		-54576	A5
-17623		-23578 -54576	C5
-18387		-54576	A6
-18478 ✓		54576 23579	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 1, 2, (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8-29 / JK 8-28-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3 DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT REQ'D SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	8-8-69			8/4/69	8/12/69		8/12/69
	VDI						

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1638

8-25-69
ISSUED BY A FURIO X 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 756
CONTROL INFO NO. LDW280A9807

FOR THE FOLLOWING DRAWINGS, REMOVE DASH NOS. "A" AND REPLACE WITH DASH NO. "B". DASH NO. "B" IS IDENTICAL TO "A" EXCEPT FOR CHEM-MILL THICKNESS .012 $^{+.002}_{-.002}$ WAS .015 ±.002, LTA-3 (13) REQM'TS. N/A AND QUANTITY SAME AS -11.

	DWG NO	CHG NO.	TITLE	DASH NO. "A"	DASH NO. "B"
✓	LDW280-18368 ✓	A1	SEE DWG	-11	-13
✓	-18378 ✓	A1	↕	-11	-13
✓	-18379 ✓	A1	↕	-11	-13
✓	-18381 ✓	A1	↕	-11	-13
	LDW280-18382 ✓	A1	SEE DWG	-11	-13

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 LCD 2220 CCA 586	3/2

REASON FOR EO
REDESIGN FOR ALSEP

DESCRIPTION OF EO
REMOVED AND REPLACED -"A" WITH -"B"
ADDED LTA-3 (13) REQM'TS.

Ⓡ GAEC EO RELEASE
JK 10/17/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
LM	LM-4 (34) THRU LM-15 (45)		
LM	DESIGN VERIFICATION TEST (70)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	REWORK	✓ SCRAP

APPROVED BY								
DATE	10/13/67			10-13-67	10/14/67		10/14/67	10/17/67
B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	756

CDR 10-20-67
ISSUED BY MARZELLA A.F. MARZELLA SECTION VEHICLE DESIGN & INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1621
CONTROL INFO NO. LDW280B 8440

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW280-17710 ✓	SEE DRAWING	LDW280-23579	B3
-17739 ✓		-23579	D3
-17885 ✓		-23579	C3
-17886 ✓		-23579	D3
-17973 ✓		-23579	B2
-18382 ✓		-23579	A6
M17729		-23579	B2
M17822		-23579	A4
LDW280-18524		-23579	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 4,5 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: Ⓟ SalB 8-27-69; JK 8/26/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1	(460)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

APPROVED BY	DBT				W/W			
DATE	8-8-69			8/4/69	8/12/69		8/12/69	8/13/69
VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~	

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1621

8-26-69
ISSUED BY A FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00 1.10 2.00 3.00				✓		EO A1 LCD 2020	EO A1 NITIAL DRAWING RELEASE PARTS MADE PER EO	LM-1(31)	NOT	REQD	R. FEGER 8/31/67		

CHG APPROVED LTR	~~GROUP LDR~~	VEH DESINT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
A	—	JHS 9/14/67	WJH 9/18/67							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18385	A Ⓐ
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18386

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
LM	LDW280-54576	DVT(70)	1 EA
PART NO. LDW280-18386-11,-13,-15,-16,-17 & -19		GAEC SCH NO. 51-2	

WORK PKG FUNCTION NO. 111 ③

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
		PRIM NO.	JK(001)	
LAST DASH NO. USED	-19	207	M.P.-16	10/4/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

S ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD-1433 (CCA#580)	

O.K

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	G.Z. ARCADOOLAS 9/18/67		
LAYOUT BY	F. MARZELLA		
CHECKED BY	J. BELL 9/21/67		
GR LEADER	9/23/67		
VEH DES INT	9/23/67		
STRUCTURES	10/3/67	PROJ ENGR	9/23/67
STRUCTURES	10/4/67	REL GROUP	
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE-SCIENTIFIC EQUIP. BAY
LOWER DECK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18386
SCALE	NONE	SHEET 1.00 OF 3

CDR 10-6-67

ENG 77.1 12-65

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280		EO NO. 782
CONTROL INFO NO. LDW280A9816		

ADD LTA-3(13) EFFECTIVITY TO DASH NO. * OF THE FOLLOWING DWGS:
QUANTITY SAME AS LM-4(34) THRU LM-15 (45)

DWG. NO.	DASH NO. *	N/A	TITLE	CHG. NO.
LDW280-18372	-11,-12,-13,-14,-15,-17,-19	LDW280-54575	SEE DWG.	A1
-18373	-11,-13,-15,-17,-19,-21	-54575		A1
-18386	-11,-13,-15,-16,-17,-19	-54576		A1
-18387	-11,-13,-15,-17,-19,-21	-54576		A1
M17775	-11	-54625		A1
M17778	-11,-13,-15,-17,-19,-21	-54625		A1
M17762	-1	-54625		A1
M17784	-11,-12	-54576		A1
-18388	-11,-13,-14,-15,-16	-54576		A1
-18389	-11,-13,-15,-16	-54576		A1
-18390	-11,-13,-15,-17,-19	-54576		A1
-18351	-1	-54625		A1
LDW280-54593	-1	LDW280-54509	SEE DWG	A1
LDW 280-18411	-13,-15	LDW280-54625	SEE DWG	A3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD1433 ok. CCA 586 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ALSEP REQUIREMENT	ADDED LTA-3(13) EFFECTIVITY TO DASH NO. *	JK 11/1

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		
LM			

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	10/23/67			10/20/67	10/23/67		10/20/67	11-3-67
D	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LE0280	782

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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NAS 9-1100

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

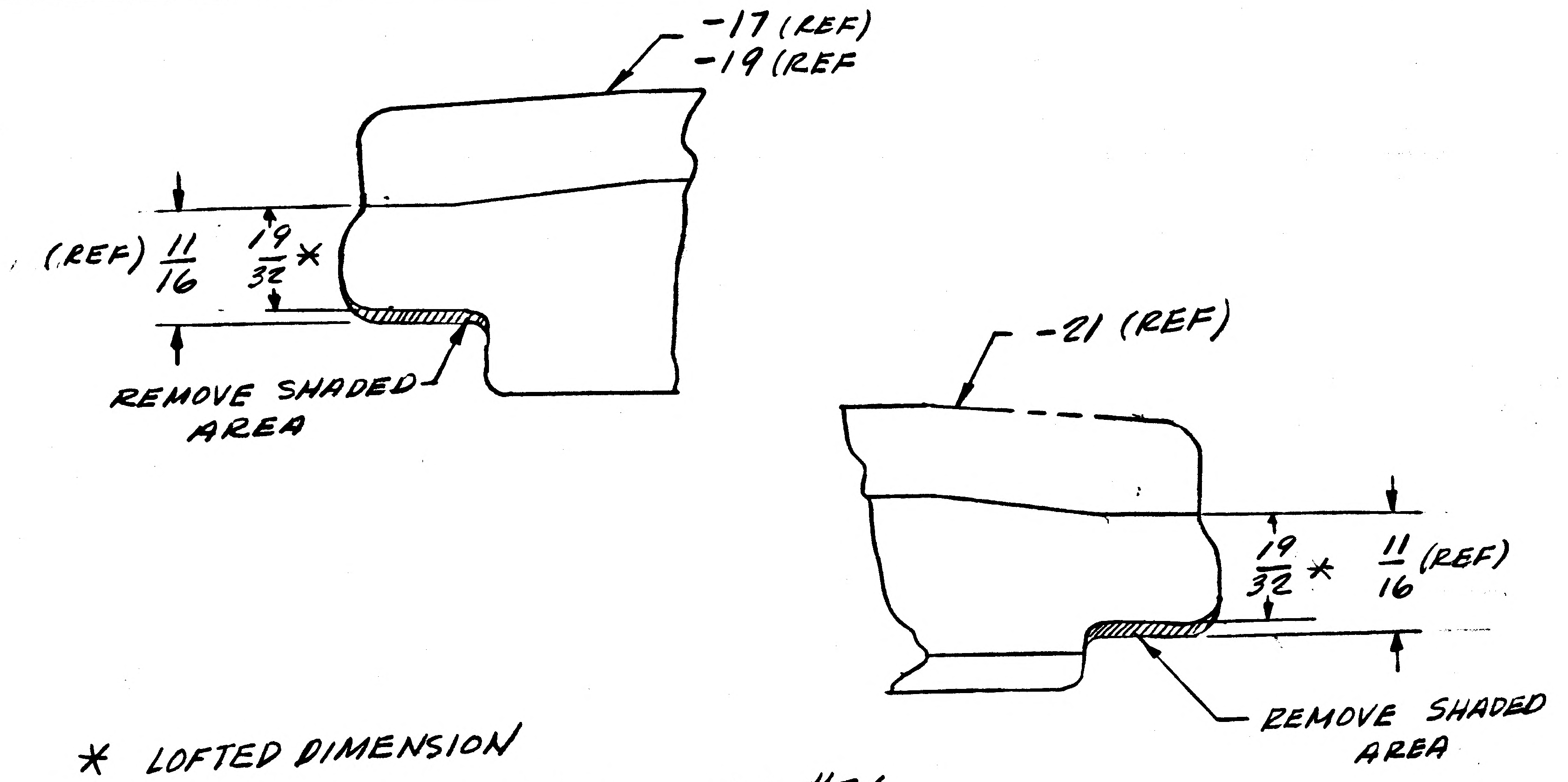
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18387

EO NO. A2

CONTROL INFO NO. LM-2-4250



* LOFTED DIMENSION

FINISH REWORKED AREA WITH #76

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA 586

(2) GAEC EO RELEASE JK 02025

REASON FOR EO

ELIMINATE INTERFERENCE WITH MATING PART AT NEXT ASSY

DESCRIPTION OF EO

IN F/D REVISED TRIM OF -17, -19 & -21

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-4 (34)	
LM	THRU	LM15 (45)	
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		-17 -19 -21	

APPROVED BY									
	JAS			—					
DATE	12-21-67			—	12/6/67	12/5/67	12-21-67	12-21-67	
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE DESCENT STAGE SCIENTIFIC EQUIPT. LOWER DECK OUTBOARD	LDW280-18387	A2

ISSUED BY LIAISON L.J. BARATELL x 3604 SECTION VD1 GROUP NO. 335 PL 25

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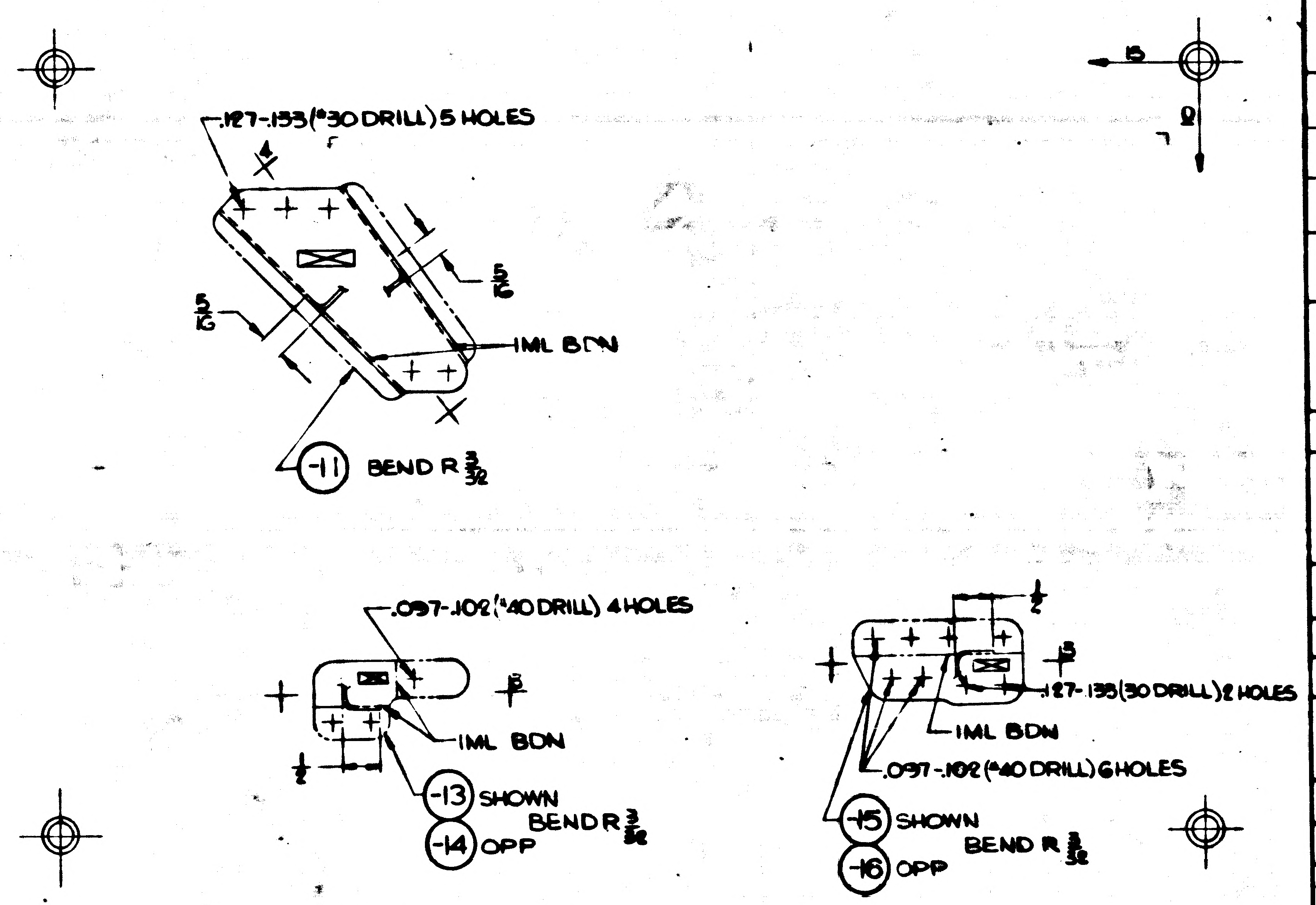
TRAM OK
9S 9/21/67

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



.127-.133 (#30 DRILL) 5 HOLES
5/16
5/16
IML BDN
-11 BEND R 3/32
.097-.102 (#40 DRILL) 4 HOLES
IML BDN
1/2
-13 SHOWN
-14 OPP
BEND R 3/32
.127-.133 (#30 DRILL) 2 HOLES
IML BDN
.097-.102 (#40 DRILL) 6 HOLES
1/2
-15 SHOWN
-16 OPP
BEND R 3/32

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭	✓
FILLET AND INSIDE CORNER RADII TOLERANCES [illegible] TO [illegible] ± [illegible] [illegible] TO [illegible] ± [illegible] OVER [illegible] ± [illegible]	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE [illegible] MIN. TO [illegible] MAX. MIN. THICKNESS TO BE [illegible] ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
∇ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
∇ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES [illegible]	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

LM	SIZE C	CODE IDENT NO. 26512	LDW280-18388
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

LDW280-18388

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO LEO 280 | EO NO. 1371
CONTROL INFO NO LDW280B 1431

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18386 ✓	A3	SEE DWG
-18387 ✓	A4	
-18388 ✓	A4	
-18389	A6	
-18390	A4	
-18391	A3	
-18392	A3	
-18398	A3	
-18401	A4	
LDW280-18402	A4	SEE DWG

* APPLICABLE DASH NOS

LCD3587 PKG 54 PG 7 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO	BASIC UNIT NO	SUB CONTR UNIT NO
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓
DISPOSITION OF PARTS: SCRAP ✓
DATE: 4-2-69 | 4/8/69 | 4/9/69

VDI

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO: LEO 280
EO NO: 1371

ISSUED BY: 032869 MEVORAH / THORJUSEN X86046 SECTION: VEH DES INT GROUP NO: 335 25

01

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1634
CONTROL INFO NO. LDW280B 8435

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG. NO.
✓ LDW280 - 18388	SEE DWG	LDW280 - 54576	A6
✓ - 18389		- 54576	B2
- 18390		- 54576	A6
- 18391		- 54576	A5
- M 17745		- 54576	A7
- M 17742		- 54576	A7
- M 17770		- 54576	A7
- 18364		- 54576	A5
- 18392		- 54576	A5
- 18512		- 54576	B4
M17854		- 54576	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 2 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: E SUB 8-21-9; JK 8/27/9

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3 DR/1 (460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQ'D	

APPROVED BY	DBF							
DATE	8-8-69			8/4/69	8/11/69		8/12/69	8/27/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1634

8-25-69
ISSUED BY A. FURIO X 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CO[illegible] IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280		EO NO. 1562
CONTROL INFO NO. LDW 280B 8114		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 ~~(40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
✓ LDW280-18381	SEE DWG	A6	
✓ 382		A5	
✓ 386		A4	
✓ 387		A5	
✓ 388		A5	
✓ 389		B1	
✓ 390		A5	
✓ 391		A4	
392		A4	
LDW280-18401	SEE DWG	A5	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 33	(5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: (E) 8-13-69
JK 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	REWORK	SCRAP
		NOT REQ'D	

APPROVED BY	DATE							
[illegible]	7-29-69	VDI						
			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
					7/31/69	N 8/2/69		8/2/69

Bauman 8/15/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1562

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1634
CONTROL INFO NO. LDW280B 8435

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG. NO.
✓	LDW280 - 18388	SEE DWG	LDW280 - 54576	A6
✓	- 18389		- 54576	B2
✓	- 18390		- 54576	A6
✓	- 18391		- 54576	A5
	- M 17745		- 54576	A7
	- M 17742		- 54576	A7
	- M 17770		- 54576	A7
	- 18364		- 54576	A5
	- 18392		- 54576	A5
	- 18512		- 54576	B4
	M17854		- 54576	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 2 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: E
8-21-9
JK 8/27/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP — NOT REQ'D

APPROVED BY	DATE	
P&T	8-8-69	VDI
		SUPPORT
		RELIAB. GROUP
	8/4/69	GROUP LEADER
WJL	8/1/69	STRESS GROUP
		LIAISON ENGRG
	8/26/69	PROJ ENGRG
	8/27/69	

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO280
EO NO.: 1634

ISSUED BY: A. FURIO X 86046 8-25-69 SECTION: VDI GROUP NO. 335 PL 25

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18392-11	E		SPRING	CRES SH	MIL-S-25043	17-7PH COND. A	.020 × 3/4 × 2 3/4	NOTE 2	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18392

SCALE NONE | SHEET 2.00

ENG 77.2 5-64

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NAS 9-1100

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ENG 32.1 REV 3-65

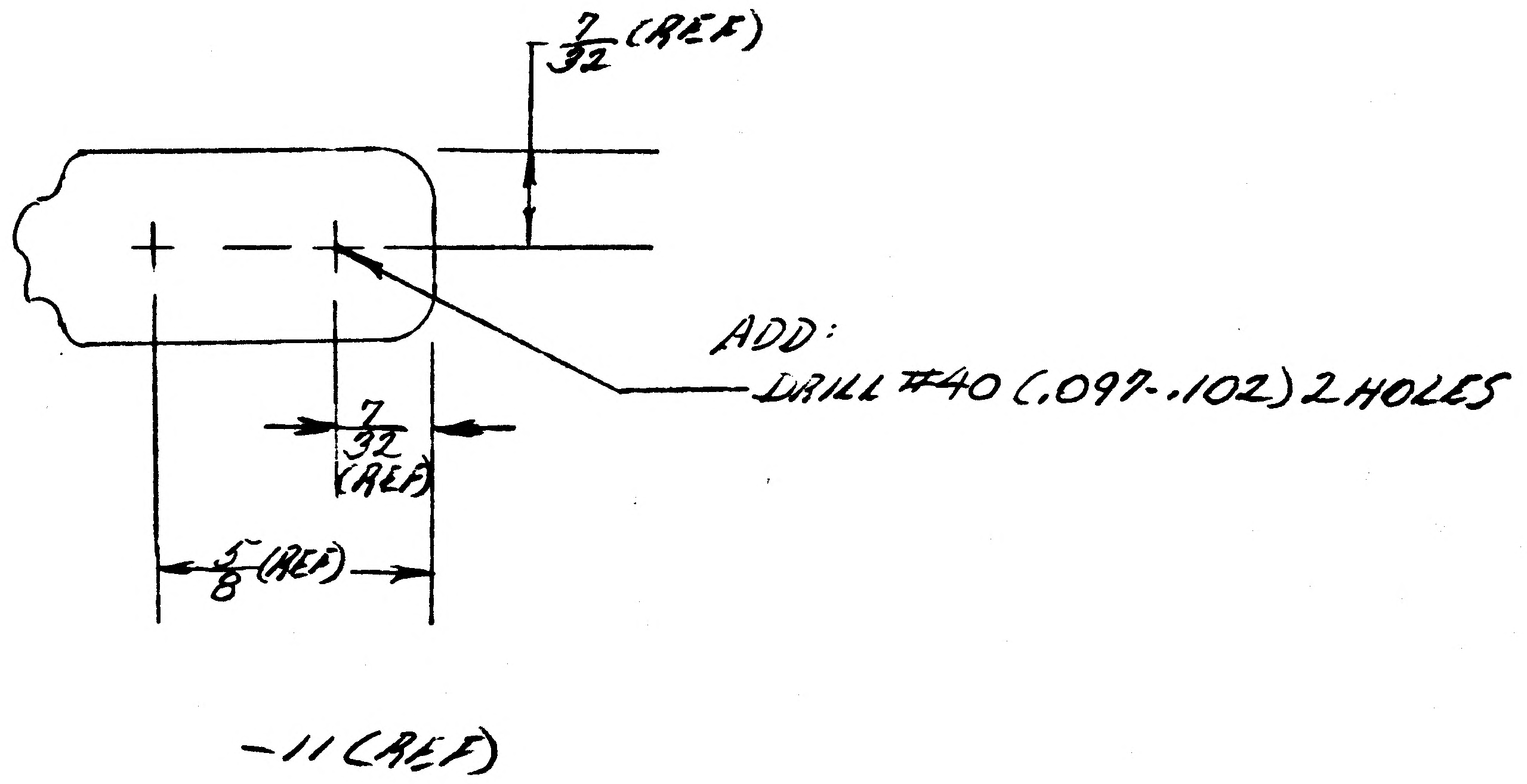
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18392

EO NO. A1

CONTROL INFO NO. LM-29-1108



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA586 (29)

REASON FOR EO: HOLES REQD FOR ASSY.

DESCRIPTION OF EO: ON-11: ADDED #40 (.097-.102) 2 HOLES.

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	DES. VERIF. TEST (70)		
	LTA-3 (13), LM4 (34) THRU		
	LM15 (45)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JRB			—	~	W.F.	JP	
DATE	12/2/67			—	~	11/3/67	12/2/67	11-16-67
	VDI							

PRIORITY: C 29

DRAWING TITLE: SPRING D.S. SCIENTIFIC PKG. LOCK MECH.

DRAWING NO. LDW280-18392

EO NO. A1

ISSUED BY LIAISON W. FRANK (7930) SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1634
CONTROL INFO NO. LDW280B 8435

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG. NO.
/	LDW280 - 18388	SEE DWG	LDW280 - 54576	A6
✓	- 18389		- 54576	B2
✓	- 18390		- 54576	A6
✓	- 18391		- 54576	A5
✓	- M 17745		- 54576	A7
✓	- M 17742		- 54576	A7
✓	- M 17770		- 54576	A7
✓	- 18364		- 54576	A5
✓	- 18392		- 54576	A5
	- 18512		- 54576	B4
	M17854		- 54576	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 2 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY	PBF							
DATE	8-8-69			8/4/69	8/1/69		8/21/69	8/7/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

GAEC EO RELEASE
E 8-21-9
JK 8/27/9

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO280
EO NO.: 1634

8-25-69
ISSUED BY A. FURIO X 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
*
ENGINEERING ORDER

DWG. NO. LDW280-18394
EO NO. A2
CONTROL INFO NO. LDW280A 9509

ON -11, -13, -17, -19, & -21, REMOVED LTA-3(13), LM-6(36) THRU LM-15(45) REQMT'S

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

LCD 2220 LCD 2183
3
GAEC EO RELEASE ® C JK 10/28

REASON FOR EO: REMOVE ELEC HARNESS SLOT
REVISE MIN WEB GAGE

DESCRIPTION OF EO: REMOVED LTA-3(13), LM6(36) THRU LM-15(45) REQMTS FROM -11 -13 -17 -19 & -21

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
		LM-6(36) THRU	LM-15(45)
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JAS			PST	wjh		WPB	
DATE	10/25/67			10-25-67	10/25/67		10/26/67	10-28-67
B								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SPLICE - D/S - BEAM PANEL WEB	LDW280-18394	A2

11/2
ISSUED BY J. LANG / D. THORJUSEN X1153
1+2
SECTION VD1
GROUP NO. 335
PL 25

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18398-21	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	2024	.063 x 4 x 6	T42	88	
	-19			STRIP		QQ-A-250/12	7075-T6	.040 x 2 x 4	NONE		
	-17			ANGLE		QQ-A-250/4	2024-T3	.032 x 2 x 3	NONE		
	-16			ANGLE		QQ-A-250/4	2024	.071 x 2 x 6	T42		
	-15			ANGLE		QQ-A-250/4		.071 x 2 x 6			
	-13			CHANNEL		QQ-A-250/12		.063 x 4 x 6			
	LDW280-18398-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/4	2024	.050 x 3 x 56	T42	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
T42	HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18398

SCALE NONE | SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

LDW280-18401

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQ'D PER MODULE OR END ITEM
LM	LDW280-54596	DESIGN VERIFICATION TEST (?)	1 EA
LM	LDW280-54596	LM-5 (45)	1 EA
↑	↑	LM-4 (44)	1 EA
		LM-3 (43)	1 EA
		LM-2 (42)	1 EA
		LM-11 (41)	1 EA
		LM-6 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
↑	↑	LM-5 (35)	1 EA
LM	LDW280-54596	LM-4 (34)	1 EA

PART NO. LDW280-18401-119-13
SAEC SCH NO. 52

WORK PKG FUNCTION NO. [illegible] 3

LINE ITEM
DOCUMENTATION TYPE [illegible]

SH REV STATUS FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	00		200	300	
REV					

LAST SECT LTR USED B
LAST DASH NO USED -13

GRUMMAN REL INFO
PRIM NO. KF-20
207 [illegible]

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°
G ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 433 CCA 536

CONTRACT NO. NAS 9-1100
DRAWN BY [illegible]
RELIABILITY
LAYOUT BY GES HANSMANN
CHECKED [illegible]
GR LEADER [illegible]
WEP DES INT [illegible]
STRUCTURES [illegible]
STRUCTURES [illegible]
WEIGHTS
PROJ ENGR [illegible]
RESP GROUP [illegible] 2-13-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE L.I. NEW YORK

WEB
DESCENT STAGE SCIENTIFIC EQUIPMENT BAY
ASTRONAUT PROTECTIVE

SIZE B
CODE IDENT NO 26512
LDW280-18401
SCALE NONE
SHEET 100 OF 3

CDR 2-23-68

ENG [illegible]

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18401-13	E		WEB	AL ALLOY SH	QQ-A-250/12	7075 - T6	.050 X 19 X 36	NOTE 3		7B
	LDW280-18401-11	E		WEB	AL ALLOY SH	QQ-A-250/12	7075 - T6	.050 X 19 X 36	NOTE 3		4A

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18401
SCALE NONE
SHEET 2.00

G 77.2 5-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18088
EO NO. B2
CONTROL INFO NO. LDW280A3001

IN MOD/BLK
INCREASE REQTS FOR -19 TO INCLUDE EFFECTIVITIES
LM-2(32) THRU LM-15(45) 1/MOD
WITH N/A LDW 280-52807 FOR LM-2(32) THRU LM-15(45)

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: INCREASED CLIP REQTS TO INCLUDE RELEASE GROUP 7 & 8

DESCRIPTION OF EO: IN MOD/BLK -19
ADDED EFF LM-2(32) THRU LM-15(45)

GAEC Ⓡ EO RELEASE: LE 11/11/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32) THRU	LM-15(45)
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD

APPROVED BY							RMC	
DATE	11/7/66				11/8/66		11-9-66	11-10-66
6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

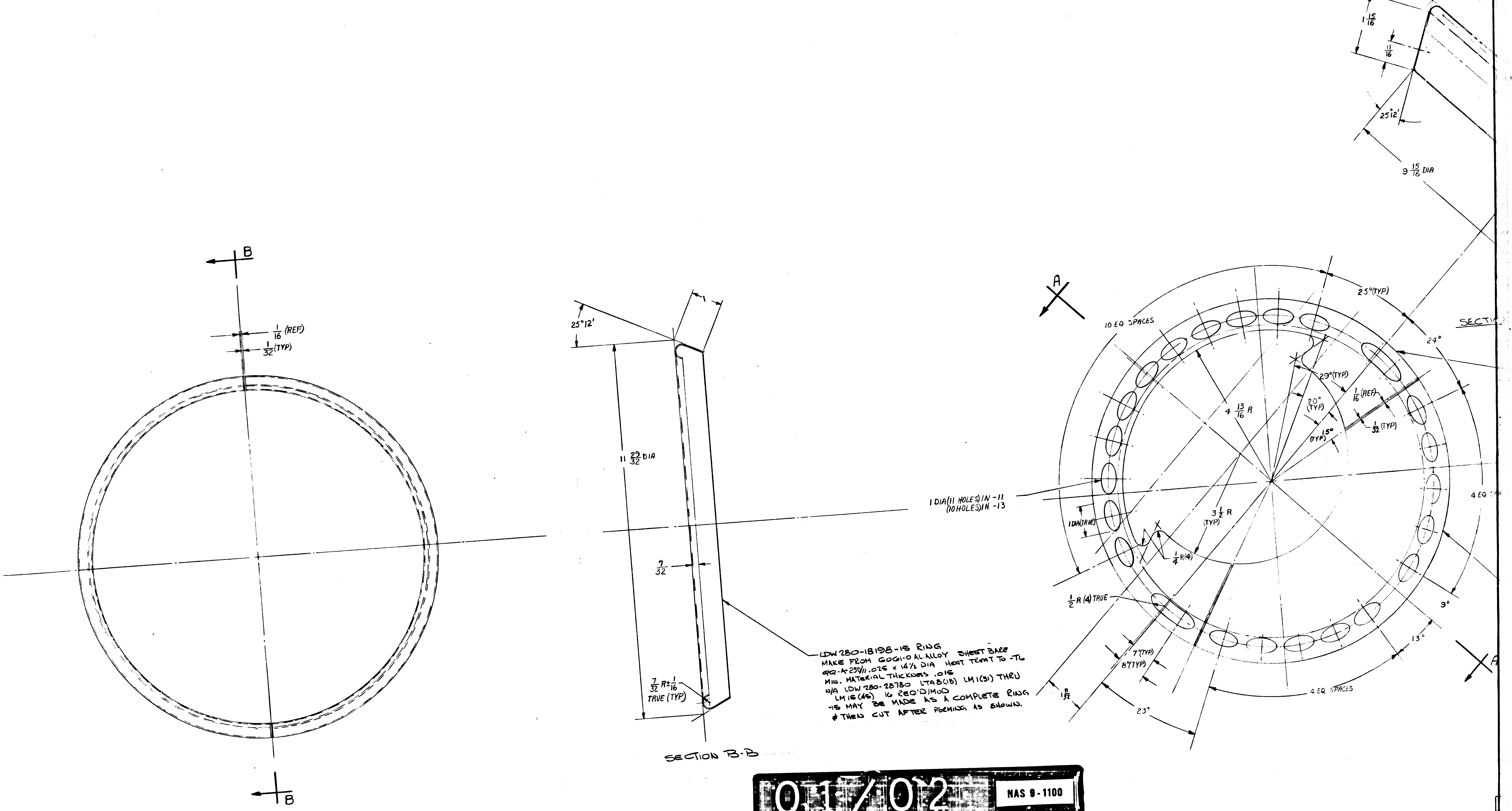
PRIORITY: C

DRAWING TITLE: SUPPORT
DESCENT STAGE ~ SCIENTIFIC
EQUIPMENT BAY - STRAP

DRAWING NO. LDW280-18088
EO NO. B2

ISSUED BY G. BARNES/J. STRAKOSCH X1392 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100


B
1/16 (REF)
1/32 (TYP)
B
25°12'
1
11 29/32 DIA.
7/32
7/32 R ± 1/16 TRUE (TYP)
SECTION B-B
LDW 280-18198-15 RING
MAKE FROM 6061-0 AL ALLOY SHEET BARE
QQ-A-250/11 .025 x 14 1/2 DIA HEAT TREAT TO -T6
MIN. MATERIAL THICKNESS .016
N/A LDW 280-28780 LTAB(18) LM1(31) THRU
LM15(45) 16 REQ'D/MOD
-15 MAY BE MADE AS A COMPLETE RING
& THEN CUT AFTER FORMING AS SHOWN.
1 DIA (11 HOLES) IN -11
(10 HOLES) IN -13
A
10 EQ SPACES
25° (TYP)
24°
29° (TYP)
20° (TYP)
15° (TYP)
1/16 (REF)
1/32 (TYP)
4 13/16 R
3 1/2 R (TYP)
1 DIA (TRUE)
1/4 R (4)
1/2 R (4) TRUE
7° (TYP)
8° (TYP)
1 11/32
23°
4 EQ SPACES
13°
9°
4 EQ
A
SECTI
1 15/16
11/16
25°12'
9 15/16 DIA

01/02

NAS 9-1100

LDW280-18030 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 126	LDW280-66813	LTA-8(18)	4 EA
PART NO. LDW280-18030-17-1 & -18-1		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28813	LTA-8(18)	4 EA
PART NO. LDW280-18030-17 & -18		GAEC SCH NO.	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	~	GRUMMAN REL INFO A	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-18-1	207	MP-KGH-6/5/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 LINE ITEM # 1 DOCUMENTATION TYPE II

DRAWN BY	F.MADDEN 9-1-66	THERMO	[illegible] 5-27-68
LAYOUT BY	F.MADDEN		
CHECKED BY			
GRP LEADER	J.STRAKOSCH 9-1		
VEH DES INT	W.BISCHOFF		
STRUCTURES	ALDERMAN 9-2-66	PROJ ENGR	R.M.CARBEE 9-7
STRUCTURES		REL GROUP	BOTTI 9-12-66
WEIGHTS	L.GARCIA 9-12-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN
DESCENT STAGE OUTRIGGER HEATER

SIZE	CODE IDENT NO.		
B	26512	LDW280-18030	A
SCALE	NONE	SHEET 1.00 OF 4	

Ⓐ

ENG 77.1 12-65

1021-33 PKG 9 6/17/68

SUPERSEDES LDW280-18030 NC 9-1-66

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NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
									RETRACED N.C. LAST REV N.C. SH SIZE "E" WAS "J" ADDED SH 1.10, 2.00 & 3.00				W.CONROY 5-7-67		
A	1	1.00 1.10 2.00 3.00						EOA1	REMOVED -11, -12, -13, -14, -15 & -16 ADDED -17 & -18	LTA-8		✓	W.CONROY 5-7-68		
	2	3.00						EO A2	IN F/D DIM 1/16 TYP WAS 1 TYP & 30° WAS 60° AND ADDED 1.0 TYP ALL TABS & 1/32 TYP ALL TABS ON -17 & -18		✓				
	3	3.00		S			✓	EO A3	ON -17 & -18 TRIMMED 4 TABS						
	4	3.00					✓	EO A4	ON -17 & -18 REMOVED TABS & ADDED (2) CUTOUTS (ADDED NOTE 1)						
	5	1.00 2.00 3.00		LFM 126		✓		LCD1021-33	ADDED -17-1 & -18-1 & NOTE 2		NOT	REQD		6/3/68	

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	THERMO
A	5-22-68	6/3/68	5/28/68			6-3-68

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18030	A

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18030-18-1	E	SKIN	AL ALLOY SH	QQ-A-250/5	ALCLAD 2024-T3	.012 × 24 × 28	NONE	NOTE 2	
								↕ -17-1	↕	↕	AL ALLOY SH	QQ-A-250/5	ALCLAD 2024-T3	.012 × 24 × 28	↕	NOTE 2	
								↕ -18	↕	↕	MAKE FROM GP10K			.010 × 24 × 28	↕	NONE	
								LDW280-18030-17	E	SKIN	MAKE FROM GP10K			.010 × 24 × 28	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18030	A

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

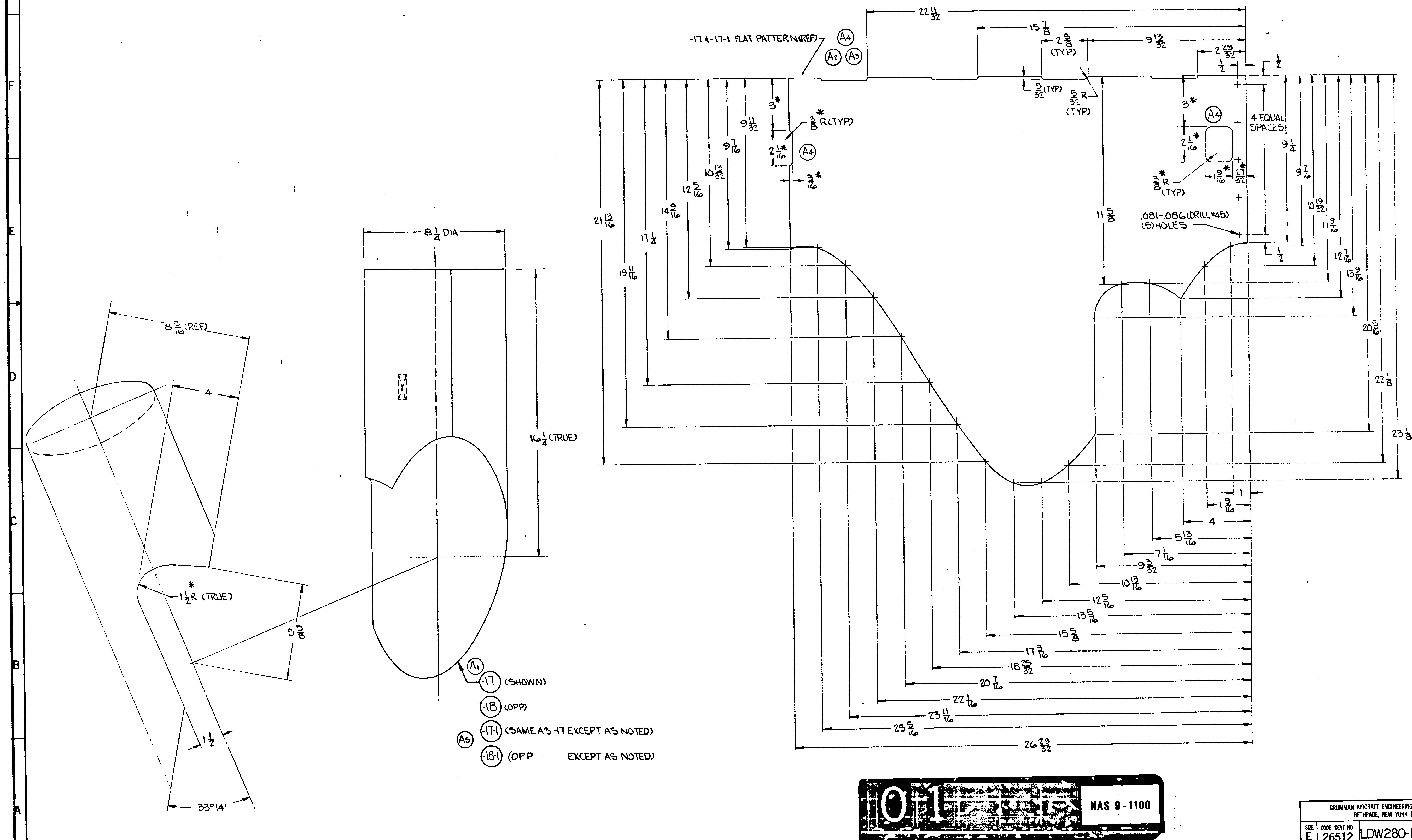
01

NAS 9-1100

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐

NOTES
1. TOLERANCE ON DIM. MARKED ✱ TO BE ± 1/2 INCH.
2. EXTERNAL SURFACES OF PARTS TO BE PAINTED WITH SICON 3X923 BLACK PAINT PER LPC 280-12. PARTS SHALL BE ANODIZED PER LSP14-9030 OR ALODINED PER LSP 14-9010 PRIOR TO PAINTING.

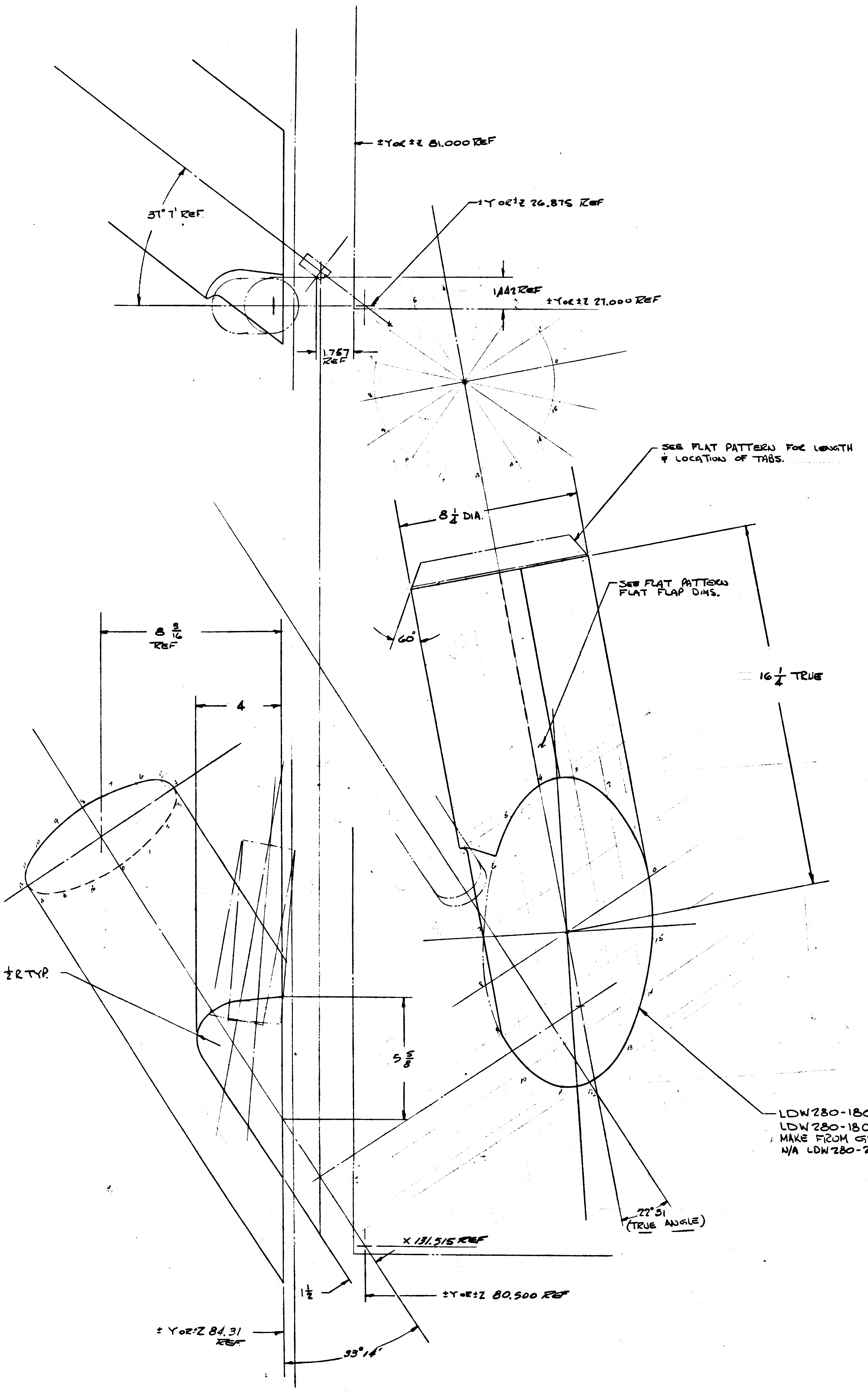

-17 & -17-1 FLAT PATTERN (REF)
A4
A2
A3
22 11/32
15 7/8
2 5/8 (TYP)
9 13/32
2 29/32
1/2
1/2
5/32 (TYP)
5/32 R (TYP)
3*
3/8* R (TYP)
2 1/16*
A4
3/16*
9 11/32
9 7/16
10 13/32
12 5/16
14 9/16
17 1/4
19 11/16
21 13/16
3*
A4
4 EQUAL SPACES
2 1/16*
1 9/16*
27/32*
3/8* R (TYP)
.081-.086 (DRILL #45) (5) HOLES
11 5/8
1/2
9 1/4
9 7/16
10 19/32
11 9/16
12 7/16
13 9/16
20 5/16
22 1/8
23 1/8
1
1 9/16
4
5 13/16
7 1/16
9 3/32
10 13/16
12 5/16
13 5/16
15 5/8
17 3/16
18 25/32
20 7/16
22 1/16
23 11/16
25 5/16
26 29/32
8 1/4 DIA
16 1/4 (TRUE)
A1
-17 (SHOWN)
-18 (OPP)
A5 -17-1 (SAME AS -17 EXCEPT AS NOTED)
-18-1 (OPP EXCEPT AS NOTED)
8 5/16 (REF)
4
1 1/2* R (TRUE)
5 5/8
1 1/2
33°14'

01 NAS 9-1100

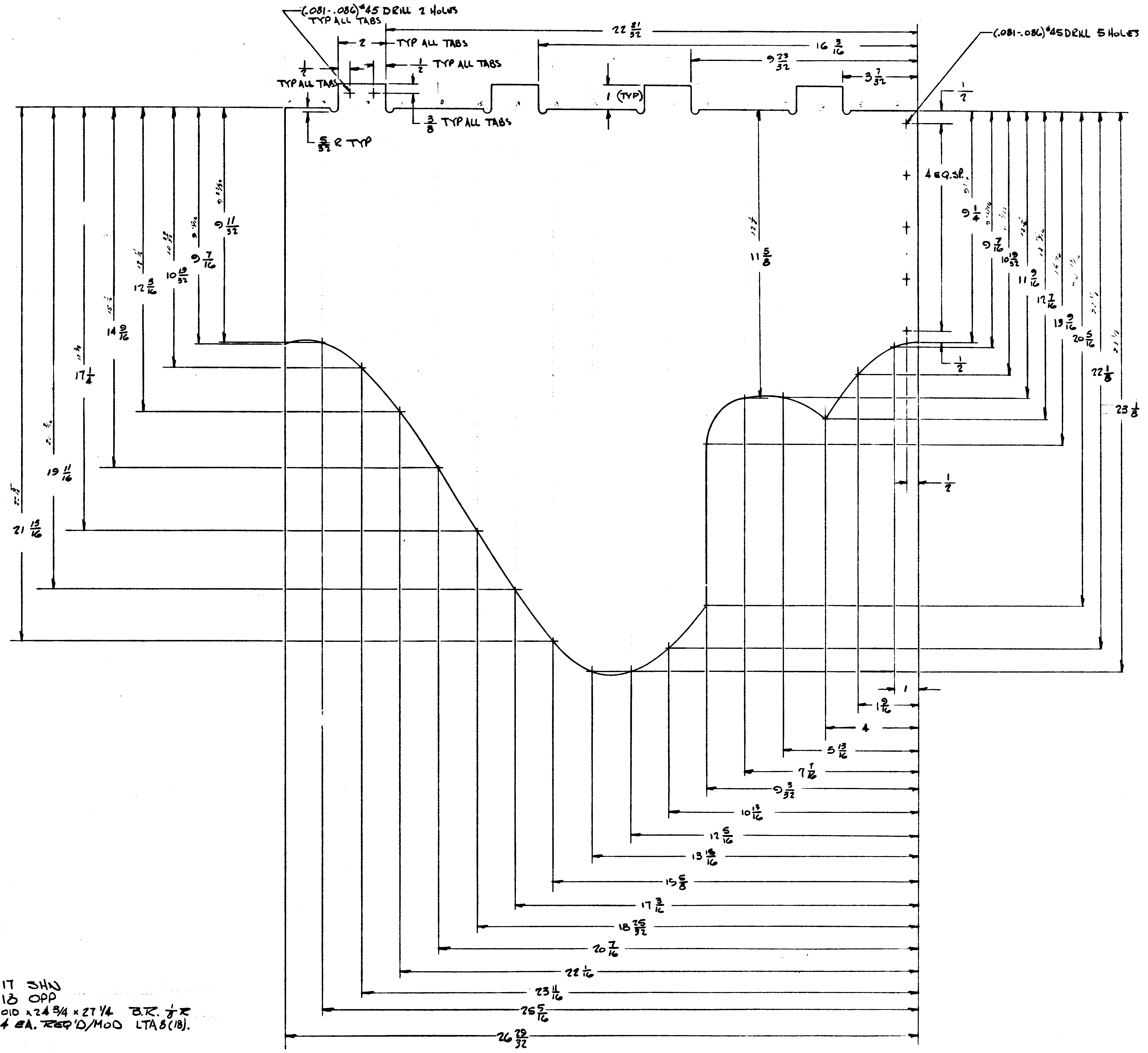
GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
E	26512	LDW280-18030	A
SCALE 1/2		SHEET 3.00	

LDW280-18030 A


±Y OR ±Z 81.000 REF
±Y OR ±Z 26.875 REF
37° 7' REF.
1.442 REF
±Y OR ±Z 27.000 REF
1.767 REF
SEE FLAT PATTERN FOR LENGTH & LOCATION OF TABS.
8 1/4 DIA.
SEE FLAT PATTERN FLAT FLAP DIMS.
60°
16 1/4 TRUE
8 9/16 REF
4
1 1/2 ± 1/2 R TYP.
5 5/8
22°31' (TRUE ANGLE)
X 131.515 REF
1 1/2
±Y OR ±Z 80.500 REF
±Y OR Z 84.31 REF
33°14'

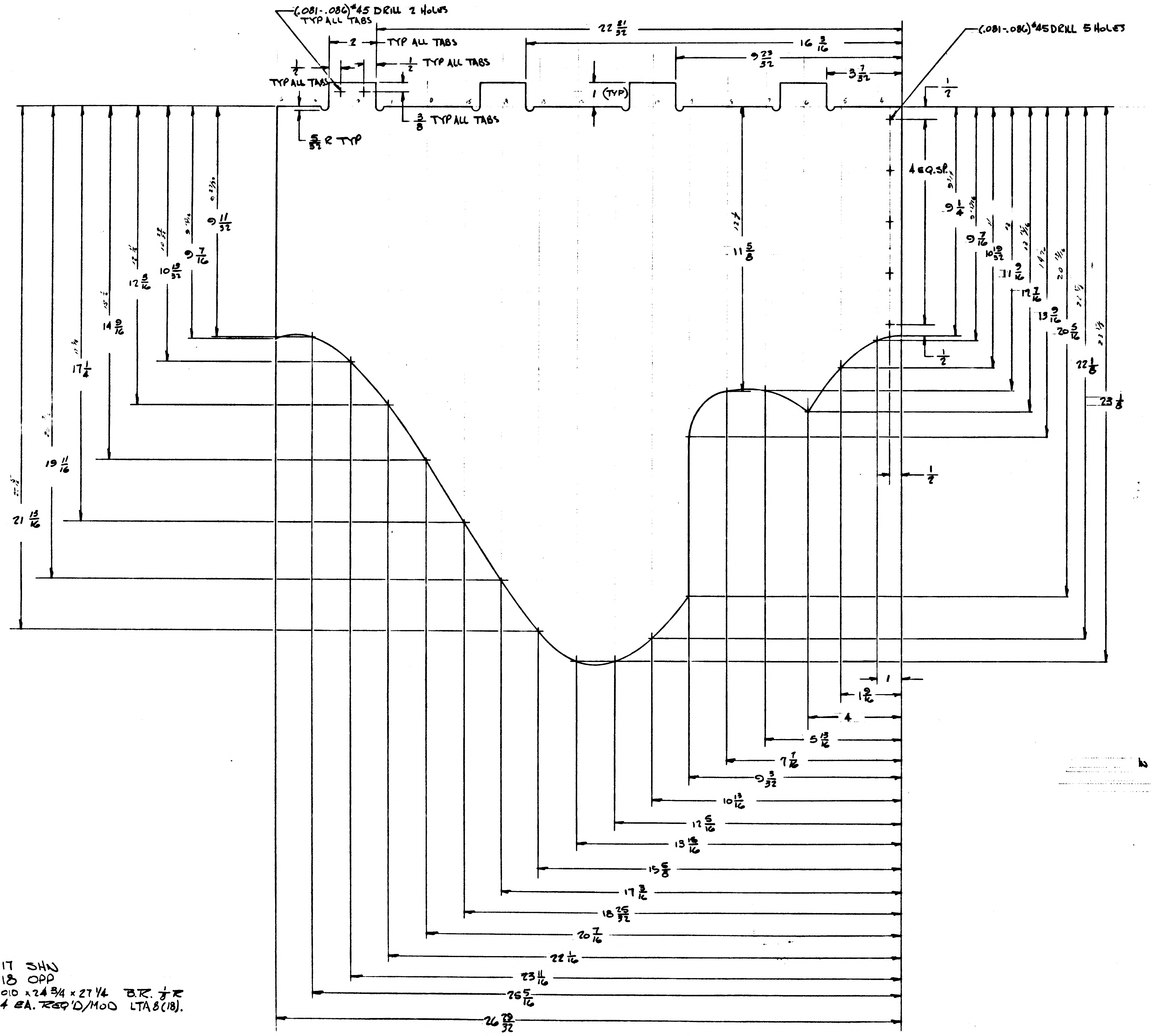
LDW280-18030-17 SHN
LDW280-18030-18 OPP
MAKE FROM GP10K .010 x 24 3/4 x 27 1/4 B.R. 1/8 R
N/A LDW280-28813 4 EA. REQ'D/MOD LTAB(18).


(.081-.086) #45 DRILL 2 HOLES TYP ALL TABS
2 TYP ALL TABS
1/2 TYP ALL TABS
1/2 TYP ALL TABS
3/8 TYP ALL TABS
5/32 R TYP
22 21/32
16 3/16
9 23/32
3 7/32
1 (TYP)
(.081-.086) #45 DRILL 5 HOLES
1/2
4 EQ.SP.
9 11/32
9 7/16
10 19/32
12 5/16
14 9/16
17 1/4
19 11/16
21 13/16
11 5/8
9 1/4
9 7/16
10 19/32
11 9/16
12 7/16
13 9/16
20 5/16
22 1/8
23 1/8
1/2
1/2
1
1 9/16
4
5 13/16
7 7/16
9 3/32
10 13/16
12 5/16
13 15/16
15 5/8
17 3/16
18 25/32
20 7/16
22 1/16
23 11/16
25 5/16
26 29/32

FLAT PATTERN FOR -17 & 18
REFERENCE USE ONLY.

W F/O. B/M

01/02 NAS 9-1100


(.081-.086) #45 DRILL 2 HOLES TYPALL TABS
(.081-.086) #45 DRILL 5 HOLES
2
TYP ALL TABS
1/2 TYP ALL TABS
1/2
TYP ALL TABS
3/8 TYP ALL TABS
5/32 R TYP
22 21/32
16 3/16
9 23/32
3 7/32
1 (TYP)
1/2
4 EQ.SP.
9 11/32
9 7/16
10 19/32
12 3/16
14 9/16
17 1/4
19 11/16
21 13/16
11 5/8
9 1/4
9 7/16
10 19/32
11 9/16
12 7/16
13 9/16
20 5/16
22 1/8
23 1/8
1/2
1/2
1
1 9/16
4
5 13/16
7 7/16
9 3/32
10 13/16
12 5/16
13 13/16
15 5/8
17 3/16
18 25/32
20 7/16
22 1/16
23 11/16
25 5/16
26 29/32

IN F/O, B/M & N/A REMOVE -11,-12,-13,-14,-15 & -16 ADD -17 & 18 I & T = E

280-18030-17 SHN
280-18030-18 OPP
FROM GP10K .010 x 24 3/4 x 27 1/4 B.R. 1/8 R
DW280-28813 4 EA. REQ'D/MOD LTA8(18).

FLAT PATTERN FOR -17 & 18
REFERENCE USE ONLY.

02/02 NAS 9-1100

2

DETAIL SPEC REQD | CLASS II ENGRG CHG | CLASS I ENGRG CHG | CONTROL INFO NO. LDW280A2880

REASON FOR EO: TO ACCOMMODATE HEATER SKIN WIRE BUNDLES.

DESCRIPTION OF EO: REMOVED -11,-12,-13,-14,-15 & -16
ADDED -17 & -18

GRUMMAN EO RELEASE C
FK 11/2/66

MODEL	EFFECTIVITY PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	

DRAWING REVISION REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT THERMO	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	
BY								
DATE	11/1/66	11/2/66		11/1/66	11/1/66		11-2-66	11/2/66
/	VD1							

PRIORITY: C
DRAWING TITLE: SKIN D/S LOWER OUTER, HEATER
ENGINEERING ORDER
DRAWING NO.: LDW280-18030
EO NO.: A1

J. STRAKOSCH X1153
ISSUED BY P. WEISSLITZ SECTION VEH. DES INT. GROUP NO. 335 PL 35
CODE IDENT NO. 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32.3 REV 3-66

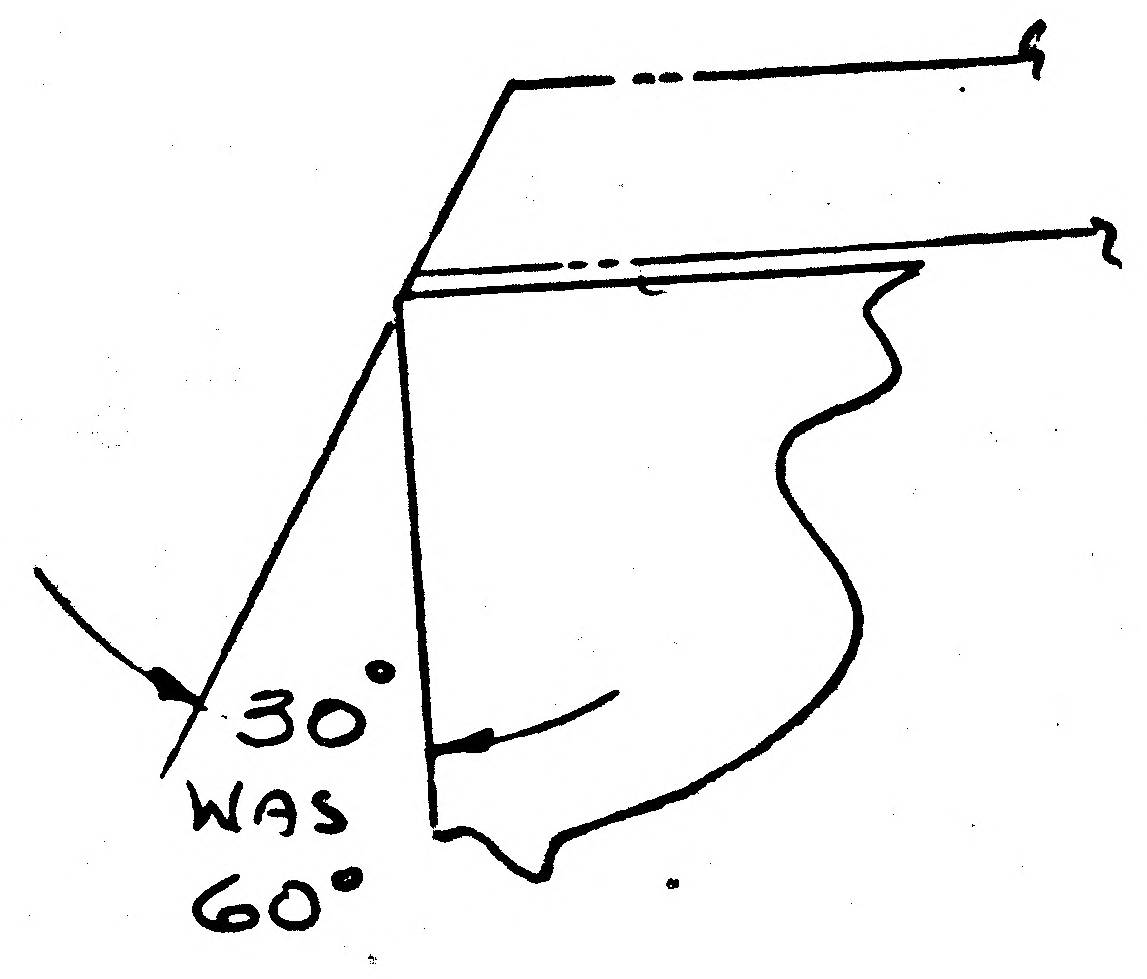
*

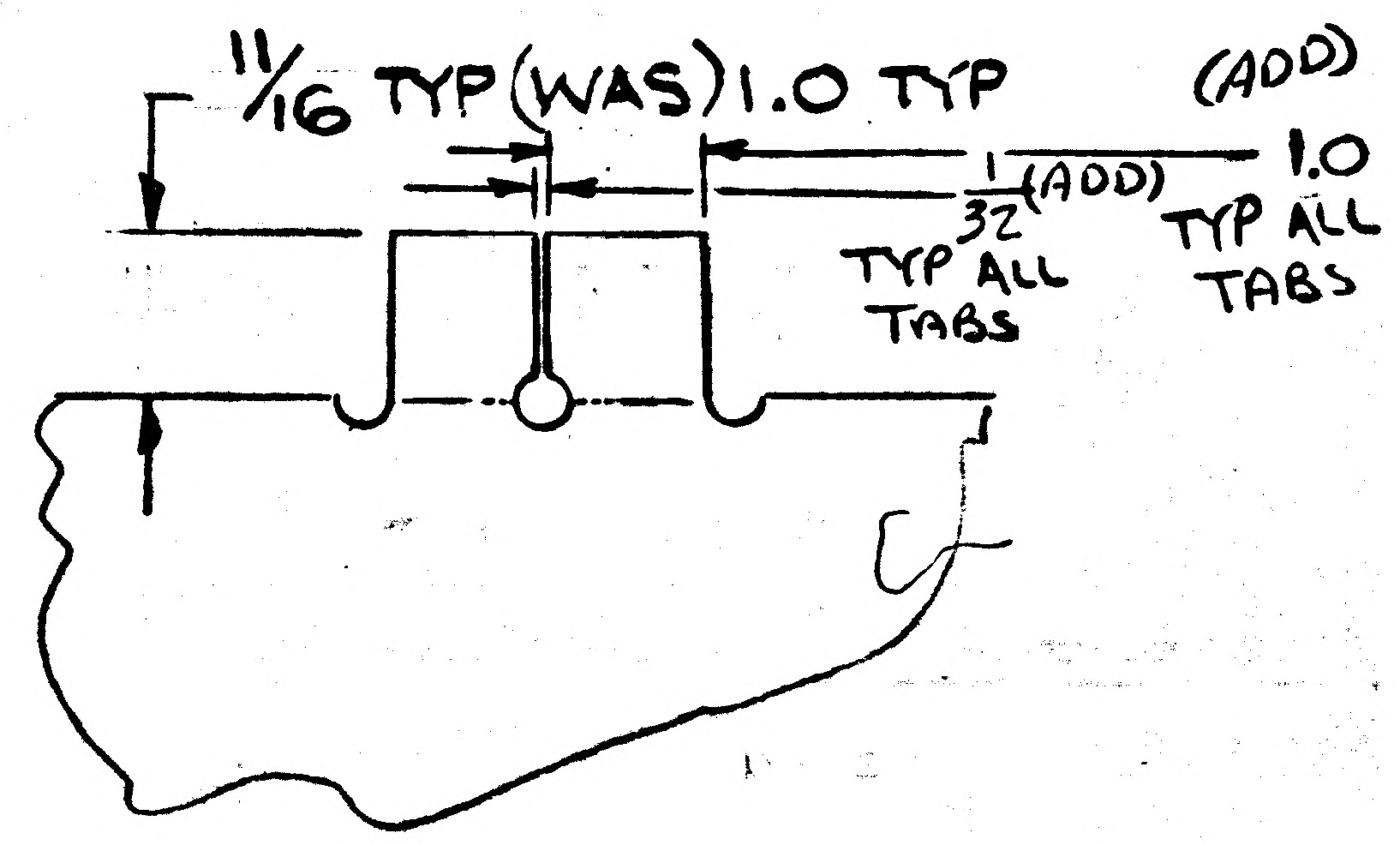
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18030		EO NO. A2
CONTROL INFO NO. LDW280A-3032		

IN F/D FOR -17 & -18 CHANGE DIMENSIONS AS SHOWN BELOW





2

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☐

REASON FOR EO: TO ELIMINATE MAT'L. SPLICE & PRODUCIBILITY

DESCRIPTION OF EO: IN F/D DIM. $\frac{11}{16}$ TYP WAS 1 TYP & 30° WAS 60° AND ADDED 1.0 TYP ALL TABS & $\frac{1}{32}$ TYP ALL TABS ON -17 & -18

Ⓡ GAEC ✓ EO RELEASE FR 11/7/66

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTAB (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	Jaf			JMS	WJH		7A/RMC	
DATE	11/7/66			11/7/66	11/7/66		11/7/66	11-7-66
1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN D/S LOWER OUTRGR, HEATER	LDW280-18030	A2

ISSUED BY P. Weisslitz / J. STRAKOSCH X1153 SECTION VD1 GROUP NO. 331 PL 31

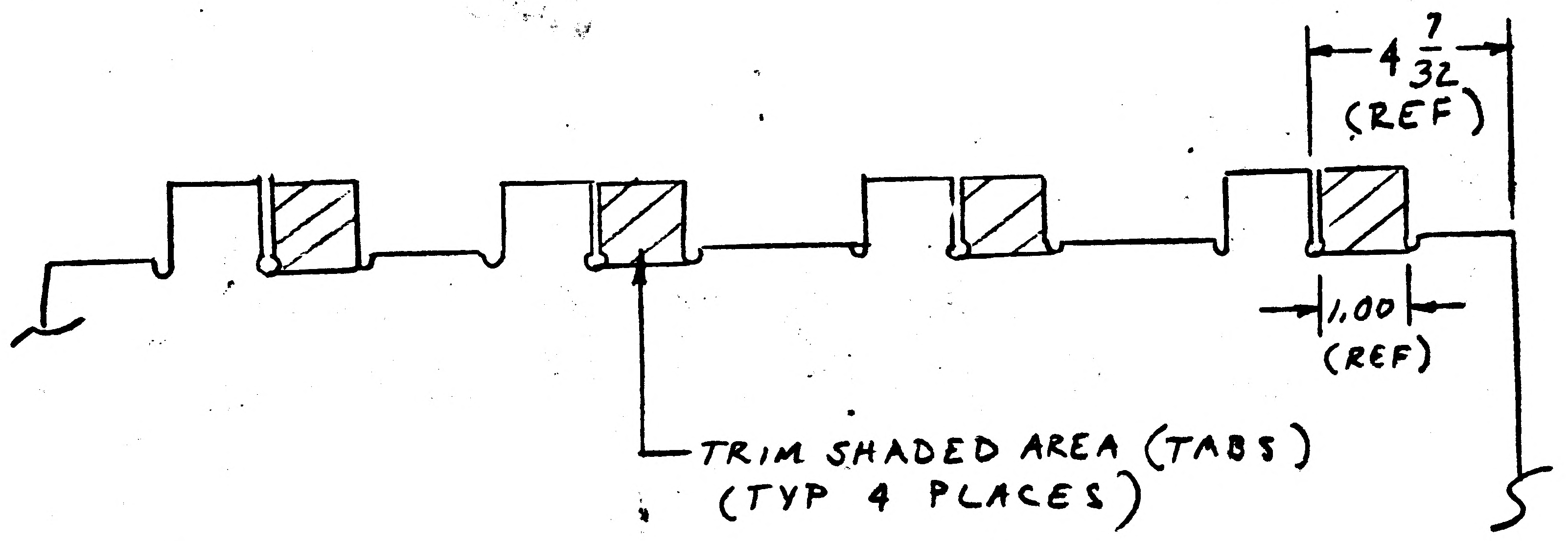
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO.	LDW280 18030
EO NO.	A3
CONTROL INFO NO.	LM 5-11126

FOR -17 & -18 TRIM TABS AS SHOWN:



DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: TO FACILITATE INSTL OF PART

DESCRIPTION OF EO: ON -17 & -18 TRIMMED 4 TABS

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (R)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	WT ALW				NM	DV	RMC	
DATE	11/17				11-17-66	11/17	11-21-66	11-18-66
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN O/S LOWER OUTBG. HEATER	LDW280-18030	A3

ISSUED BY B. QUEVEDO / D. RAGAS X6450 X1153 SECTION VDI GROUP NO. 335 PL 5

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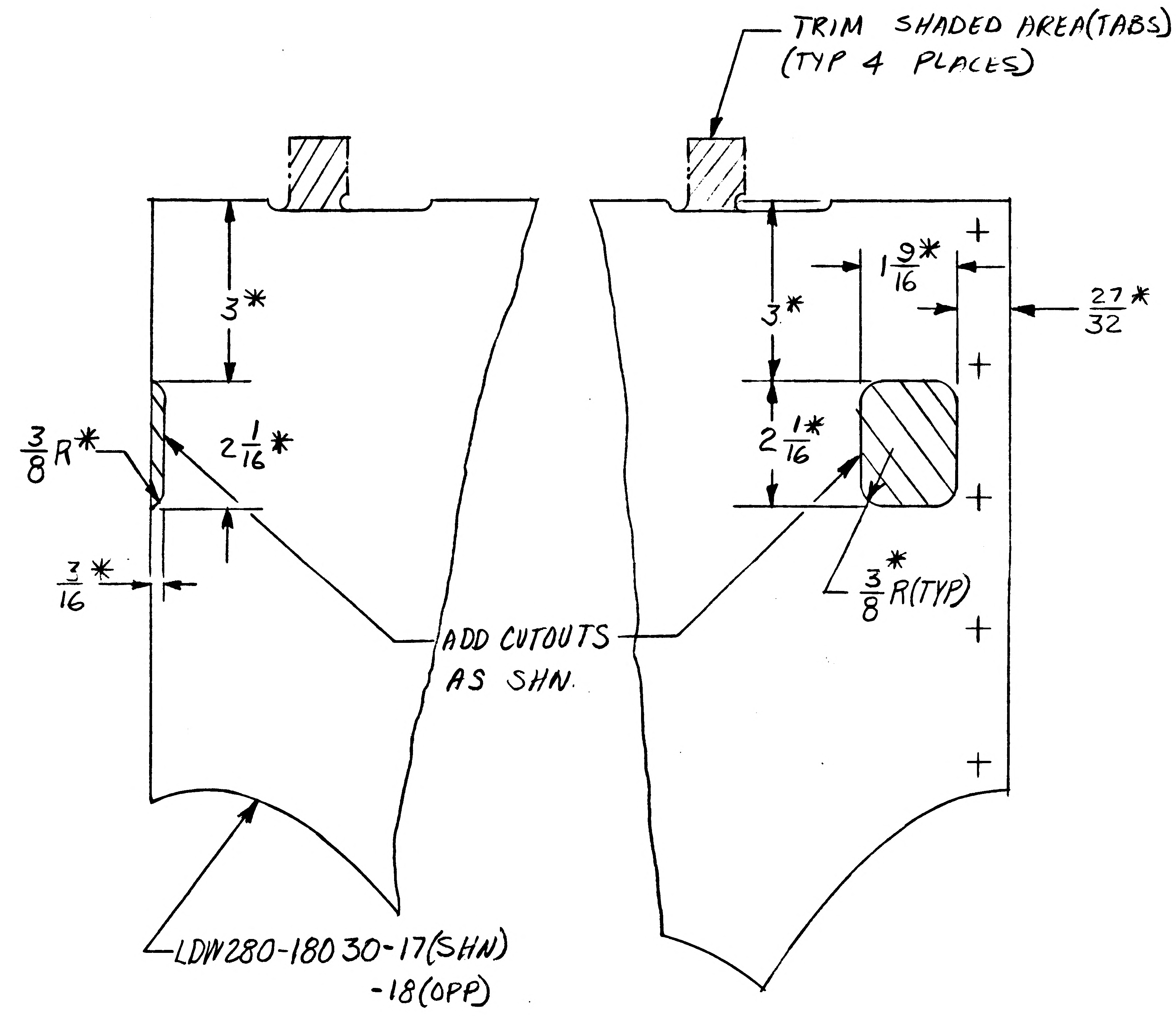
NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18030 | EO NO. A4
CONTROL INFO NO. LDW280A4762


TRIM SHADED AREA(TABS)
(TYP 4 PLACES)
3*
$2\frac{1}{16}$*
$\frac{3}{8}$R*
$\frac{3}{16}$*
ADD CUTOUTS AS SHN.
3*
$1\frac{9}{16}$*
$\frac{27}{32}$*
$2\frac{1}{16}$*
$\frac{3}{8}$R(TYP)*
LDW280-18030-17(SHN)
-18(OPP)

* TOL. ON ALL DIMENSIONS $\pm\frac{1}{2}$

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REVISE HTR SKIN TO ACCOMODATE BRKT FOR HTR & INSTRUMENTATION WIRING (LCR 762)	ON -17 & -18 REMOVED TABS & ADDED (2) CUTOUTS	2 C FR 2/14/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS
REVISE DWG ✓	RECORD EO
REWORK ✓	SCRAP

APPROVED BY			~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~ASST~~
DATE	2/9/67				2/9/67	2/13/67		2/13/67	2/13/67
5	VDI								

PRIORITY C
DRAWING TITLE SKIN ~ D.S. ~ LWR OUTRGR ~ HEATER
DRAWING NO. LDW280-18030
EO NO. A4

ISSUED BY J. ROGERS / J. STANKOSCH X1392 SECTION VEH DES. INT GROUP NO. 335 PL 35

01
NAS 9-1100

LDW280-18033

MODEL	NEXT ASSY	MOD.	REQD/MOD
LEM	LDW280-28792	LTA 8	36

PART NO. LDW280-18033-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28792	LTA-8	4 EA

PART NO. LDW280-18033-15 & -17
GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28792	LTA-8	3 EA.

PART NO. LDW280-18033-21 & -23
GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28792	LTA-8	1 EA

PART NO. LDW280-18033-11 & -13
GAEC SCH NO. 52

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED A
LAST DASH NO. USED -21

GRUMMAN REL INFO
PRIM NO. 207
VE(001) MP 7-11-6X

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
LINE ITEM
DOCUMENTATION TYPE

DRAWN BY	R. VAN COTT	RELIABILITY	
LAYOUT BY		STRUCT TEST	
CHECKED BY			
GRP LDR	7/7/66		
VEH DES INT	7/8		
STRUCTURES	N/A 7/9/66	PROJ ENGR	R. Plunkett 14 July 66
STRUCTURES	Hilderman 7/11	REL GROUP	7/15/66
WEIGHTS	7-14		

® GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN
DESCENT STAGE-RBHS-THERMAL CONTROL

SIZE B
CODE IDENT NO. 26512
LDW280-18033
SCALE 1/2 NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	3	LDW280-18033-23	E	SKIN	MAKE FROM GP10K			.010 × 24 × 68			
	3	-21	↑	SKIN	↑			.010 × 18 × 44			
	36	-19		SPLICE				.010 × 1½ × 4			
	4	-17		SKIN				.010 × 26 × 64			
	3	-15		↑				.010 × 24 × 78			
	1	-13	↓	↓	↓			.010 × 24 × 68			
	1	LDW280-18033-11	E	SKIN	MAKE FROM GP10K			.010 × 18 × 44			

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : EXEMPT

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18033

SCALE ½ NONE

SHEET 2.00

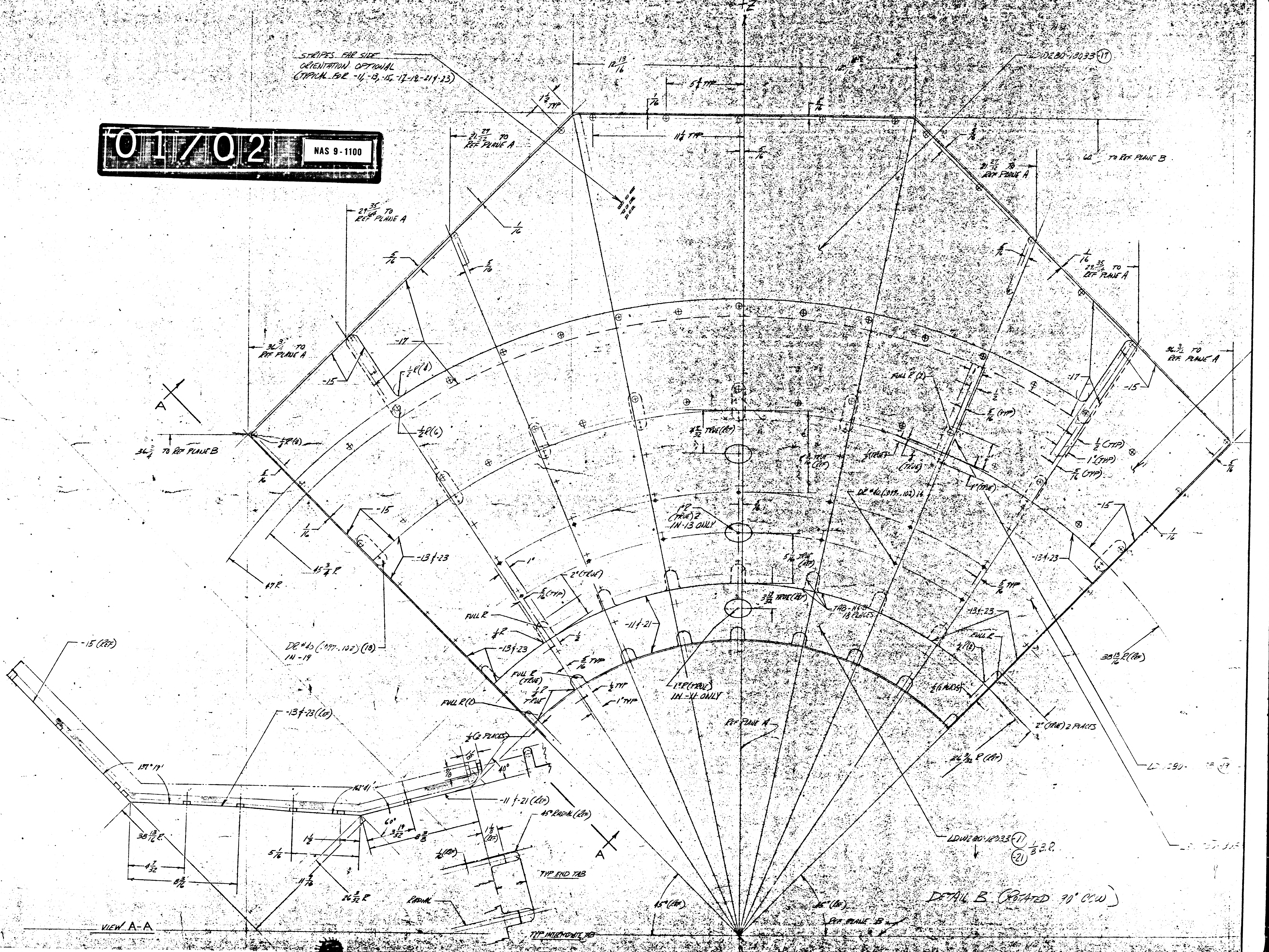
ENG 77.2 7-65

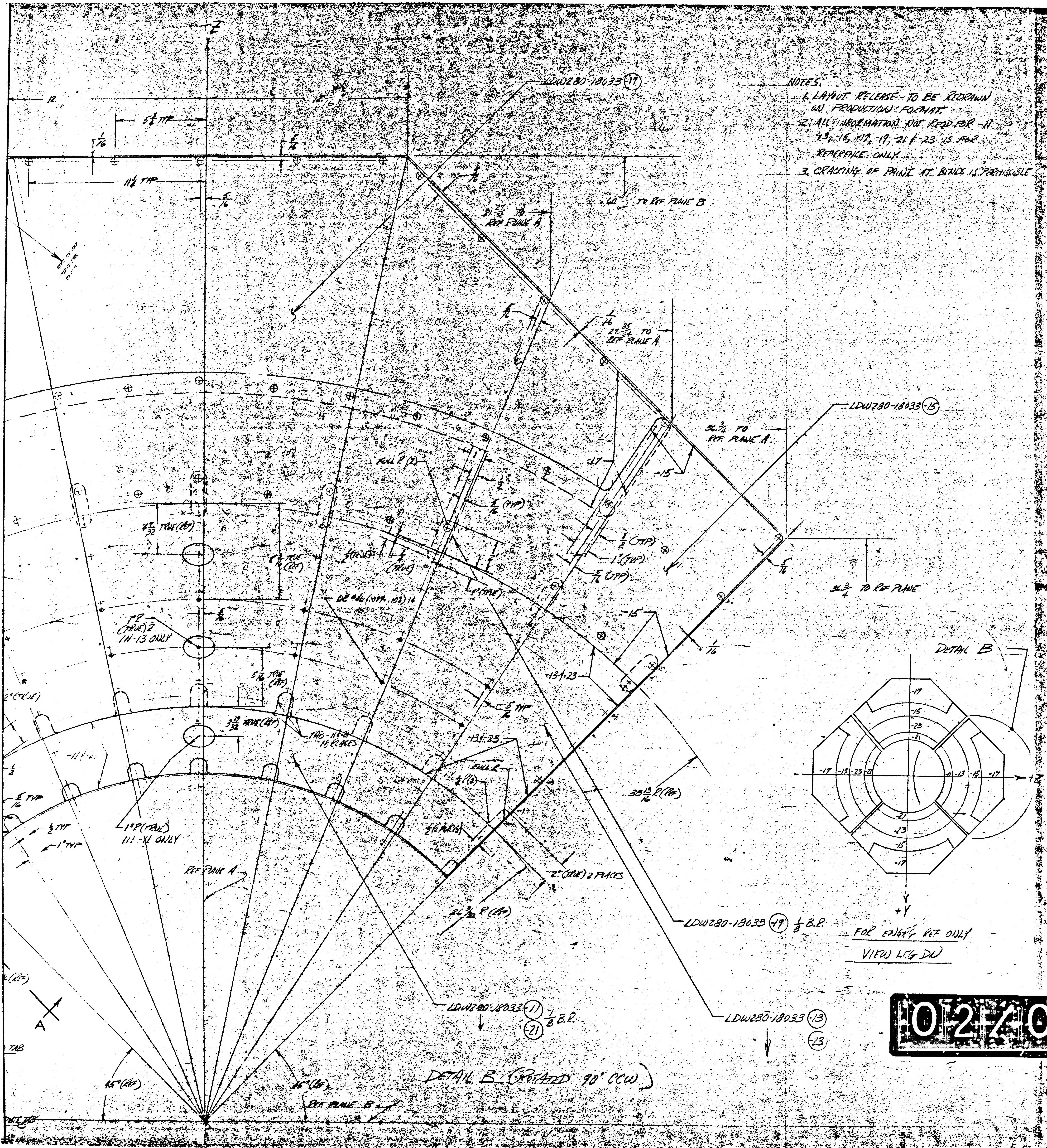
01

NAS 9-1100

01/02

NAS 9-1100


+Z
STRIPES FAR SIDE
ORIENTATION OPTIONAL
(TYPICAL FOR -11, -13, -15, -17, -19, -21 & -23)
12 13/16
5 1/4 TYP
1 1/2 TYP
11 1/4 TYP
LDW280-18033-17
21 29/32 TO REF PLANE A
60 TO REF PLANE B
29 35/64 TO REF PLANE A
36 3/4 TO REF PLANE A
36 3/4 TO REF PLANE B
1/16
5/16
-17
-15
-13 & -23
-11 & -21
1/2 R (6)
FULL R (2)
1/2 (TYP)
1" (TYP)
5/16 (TYP)
1" (TRUE)
DR #40 (.097-.102) 14
1" R (TRUE) 2 IN-13 ONLY
1 1/2 R (TRUE) IN-11 ONLY
TAB-11 & 21 18 PLACES
5/16 TYP
47 R
45 3/4 R
38 13/16 R (REF)
26 3/32 R (REF)
DR #40 (.097-.102) (18) IN-19
FULL R
FULL R (TRUE)
2" (TRUE)
2" (TRUE) 2 PLACES
1/2 (6 PLACES)
REF PLANE A
REF PLANE B
45° (REF)
LDW280-18033-11 -21 1/3 S.R.
A
A
DETAIL B (ROTATED 90° CCW)
-15 (REF)
-13 & -23 (REF)
-11 & -21 (REF)
131° 19'
142° 41'
60°
40°
45° RADIAL (REF)
38 13/16 R
4 7/32
6 3/16
5/16
1 1/2
26 3/32 R
1/2 (2 PLACES)
TYP END TAB
RADIAL
TYP INTERMEDIATE TAB
VIEW A-A


Z
12
5 1/4 TYP
1/16
11 1/4 TYP
5/16
LDW280-18033-17
LDW280-18033-15
LDW280-18033-19 1/8 B.P.
LDW280-18033-11 / -21 1/8 B.P.
LDW280-18033-13 / -23
21 27/32 TO REF PLANE A
22 31/32 TO REF PLANE A
36 3/4 TO REF PLANE A
36 3/4 TO REF PLANE
TO REF PLANE B
-17
-15
-13 & -23
FULL R (2)
1/2 (TYP)
1" (TYP)
5/16 (TYP)
1" (TRUE)
2" (TRUE)
1" R (TRUE) 2 IN-13 ONLY
1" R (TRUE) 111-X1 ONLY
TAB
18 PLACES
5/16 TYP
1/2 TYP
1" TYP
2" (TRUE) 2 PLACES
38 13/16 R (REF)
26 3/32 R (REF)
REF PLANE A
REF PLANE B
45° (REF)
A
DETAIL B
-17 -15 -23 -21 -11 -13 -15 -17
+Z
+Y
FOR ENGR'G REF ONLY
VIEW LKG DN

DETAIL B (ROTATED 90° CCW)

NOTES:

1. LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.
2. ALL INFORMATION NOT REQD FOR -11 -13, -15, -17, -19, -21 & -23 IS FOR REFERENCE ONLY.
3. CRACKING OF PAINT AT BENDS IS PERMISSIBLE.

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

02/02

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LEM	SIZE J	CODE IDENT NO. 26512	LDW280-18033	
MODEL OR END ITEM	SCALE 1/2		SHEET 3.0	

THIS IS AN ORIGINAL DRAWING

ENG 32.1 10-63

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GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18033

EO NO. A1

CONTROL INFO NO. LDW280-9842

IN NOTES, REMOVE NOTE " CRACKING OF PAINT ---- IS PERMISSIBLE "

IN F/D, REMOVE CALLOUTS OF STRIPES

IN B/M, ADD CLEANLINESS LEVEL 'C', LSP 14-0011, FOR -11 THRU -23

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: FINISH PROCEDURE REVISED

DESCRIPTION OF EO: NOTED ABOVE

GAEC EO RELEASE: LE 4-6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY					N/A		RMC	
DATE	8/23/66	9-25			9/25		9·3	8/31/66
	VDI	WJ	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	THERMO	PROJ ENGRG	~~CONT~~

PRIORITY: C

DRAWING TITLE: SKIN~DESCENT STAGE ~ RBHS THERMAL CONTROL

DRAWING NO. LDW280-18033

EO NO. A1

ISSUED BY A. RICHER / J. STRAKOSCH

GROUP VDI

R 35

01

NAS 9-1100

ENG 22.2 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18033 | EO NO. A2
CONTROL INFO NO. LDW280A-2012

01

1. REMOVE -11, -13, -15, -17, -19, -21 & -23
ADD -25, -27, -29, -31, -33, -35 & -37 IDENTICAL RESPECTIVELY EXCEPT THAT "DR #40 (.097-.102) 14 SHALL BE DELETED FROM -27 & -37.

2. MATL FOR -25 THRU -37 SHALL BE .013 COMP. 321 ANNEALED CORROSION RESISTANT STEEL SHEET - MIL-S-6721. ADD NOTE NO. *: FOR -25 THRU -37
"THE TOTAL HEMISPHERICAL EMITTANCE, AT 100°F, SHALL BE .16 ± .05 ON THE OUT(B) SIDE AS MEASURED WITH A GIER-DUNKLE PORTABLE EMISSOMETER OR EQUIV. RUBBER STAMP SIDE OF STOCK MEETING THIS REQUIREMENT "OUT(B)".

3. REMOVE "STRIPES FOR SIDE - ORIENTATION OPTIONAL" FROM FD OF DWG.

* USE NEXT AVAILABLE NOTE NO.

NAS 9-1100

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	
REASON FOR EO: HIGH TEMP MATL REQD	DESCRIPTION OF EO: REMOVE -11, -13, -15, -17, -19, -21 & -23 ADD -25, -27, -29, -31, -33, -35 & -37 & NOTE * REMOVE "STRIPES" FOR SIDE - ORIENTATION OPTIONAL		GAEC EO RELEASE: VE 10/17

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS
REVISE DWG ✓	REWORK
RECORD EO	SCRAP ✓

APPROVED BY	GWB	AB			NJH				
DATE	10/10/66	10/14/66			10/10/66		10-10-66	10-19-66
	VD1	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN DESCENT STAGE RBHS - THERMAL CONTROL	LDW280-18033	A2

BY R. VAN COTT SECTION VDE GROUP NO. 335 PL 35

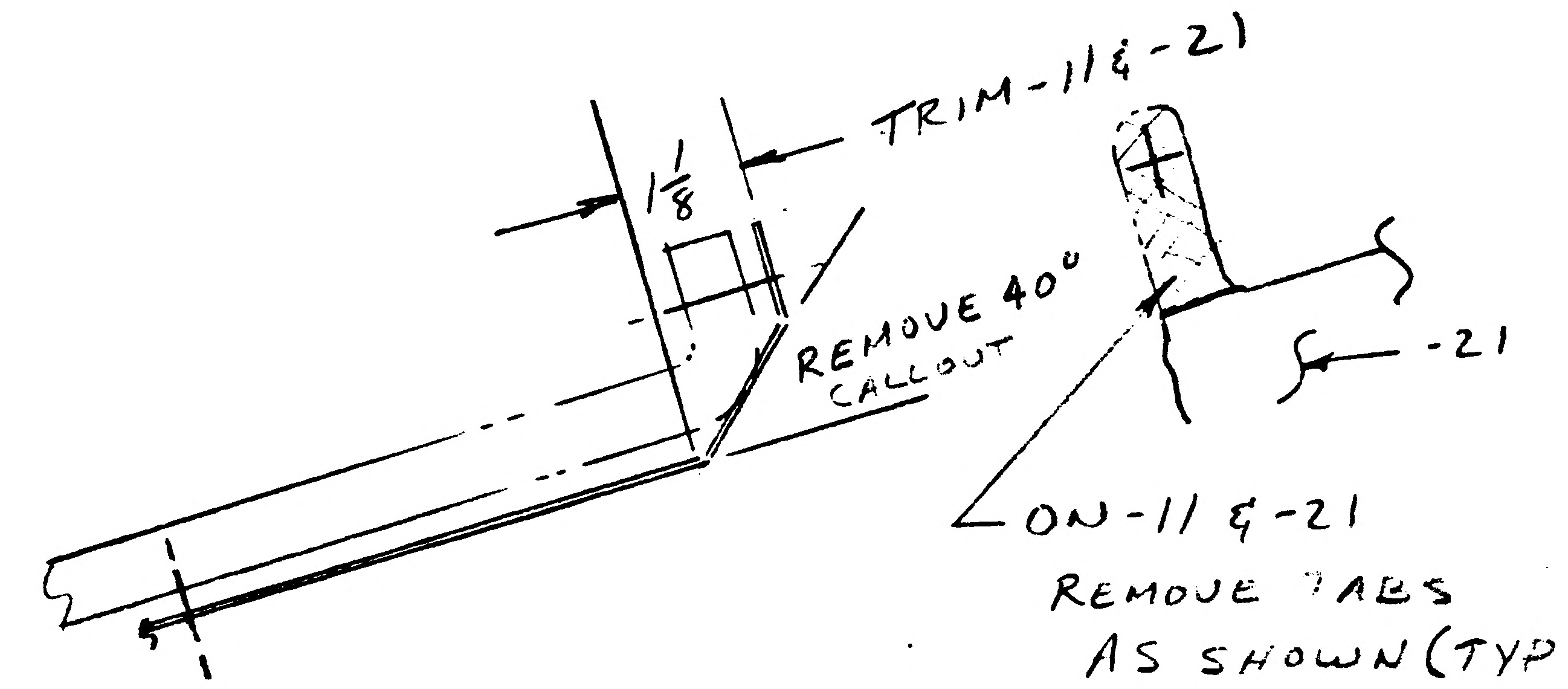
B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18033
EO NO. A3
CONTROL INFO NO. LM 5-11722

EO NUMBER WAS C4



TRIM-11&-21

REMOVE 40° CALLOUT

ON-11 & -21
REMOVE TABS
AS SHOWN (TYP
9 PLACES)

RELEASED BY LIAISON

'5'

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐
CL I ENGRG CHG	☐		

REASON FOR EO: TO REMOVE INTERFERENCE WITH ENG. FLG HEATSHIELD RING

DESCRIPTION OF EO: TRIMMED -11 & -21

GAEC EO RELEASE: ✓ C LE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (1&)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	WT							
DATE	1/25/67				1/25/67		1/31/67	1/26/67
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C

DRAWING TITLE: SKIN ASSY D/S-R.BH. 5-THERM. CONTROL

DRAWING NO.: LDW280-18033

EO NO: A3

ISSUED BY Don Ragas X6510 SECTION VD1 GROUP NO. 335 PL 5

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18033
EO NO. A4
CONTROL INFO NO. LM-5-11734

THIS IS A REV OF EO A3

REVISE CALLOUT TO READ:

TRIM -25 & -35 WAS -11 & -21

&

ON -25 & -35 REMOVE TABS (WAS) ON -11 & -21

IN DESCRIPTION OF EO

TRIMMED -25 & -35 WAS TRIMMED -11 & -21

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		5

REASON FOR EO: TO CORRECT EO CALLOUTS

DESCRIPTION OF EO: REF EO A3 TRIMMED -25 & -35 WAS TRIMMED -11 & -21

GAEC EO RELEASE: C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT			~	NM	JH	RMC	[illegible]
DATE	1/26/67			~	1-26-67	1-26-67	1-31-67	2/8/67
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~DCIT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY D/S RBHS-THERM. CONTROL	LDW280-18033	A4

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

LDW280-18035 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-15(45)	1
LM	LDW280-54791	LM-14(44)	1
LM	LDW280-54791	LM-13(43)	1
LM	LDW280-54791	LM-12(42)	1
LM	LDW280-54791	LM-11(41)	1
LM	LDW280-54791	LM-10(40)	1
LM	LDW280-54791	LM-9(39)	1
LM	LDW280-54791	LM-8(38)	1
LM	LDW280-54791	LM-7(37)	1
LM	LDW280-54791	LM-6(36)	1
LM	LDW280-54791	LM-5(35)	1
LM	LDW280-54791	LM-4(34)	1
LM	LDW280-52791	LM-3(33)	1
LM	LDW280-52791	LM-2(32)	1
LM	LDW280-52789	LM-3(33)	1
LM	LDW280-52789	LM-2(32)	1
LM	LDW280-51789	LM-1(31)	1
LM	LDW280-28791	LM-1(31)	1
LM	LDW280-28791	LTA-8(18)	1
PART NO. LDW280-18035-25		GAEC SCH NO. 50	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51789	LM-1(31)	1EA
LM	LDW280-28789	LTA-8(18)	1EA
PART NO. LDW280-18035-21 & -23		GAEC SCH NO. 50	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52789	LM-3(33)	1
LM	LDW280-52789	LM-2(32)	1
LM	LDW280-51789	LM-1(31)	1
PART NO. LDW280-18035-29			
LM	LDW280-51789	LM-1(31)	1
PART NO. LDW280-18035-27			
LM	LDW280-28789	LTA-8(18)	1EA
PART NO. LDW280-18035-11, -13 & -19		GAEC SCH NO. 50	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A

LAST SECT LTR USED A

LAST DASH NO. USED -29

GRUMMAN REL INFO A

PRIM NO. 207 FR(001) MP14A 12/8/6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	RAGAS
LAYOUT BY	BUKOWSKI
CHECKED BY	
GROUP LDR	J.STRAKOSCH 6/15
VEH.DES.INT.	W.BISCHOFF 6/20
STRUCTURES	W.HAUCK 6/24
STRUCTURES	R.HILDERMAN 6/24
WEIGHTS	D.ROBESCH 7/11
PROJ ENGR	R.PLUNKETT 7/13
REL GROUP	C.BOTTI 7/13

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE-UPPER DECK
ELECT. SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18035 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-18035 NO CHG 7-13-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHG LAST REV NO CHG LOFTED DWG WAS DIM. ~ R. SVOBODA ~ 11-23-66. ADDED SHEET 1.10						
A	1	1.00 & 1.10						EO A1	IN MOD BLK FOR -11, -13, -15, -17 & -19 ADDED REQUIREMENTS FOR LM-1 (31), LM-2 (32), LM-3 (33)	NOTED	✓		R. SVOBODA 11-23-66		
	2	1.00, 1.10, 2.00 & 3.00						EO A2	REMOVED -15 & -17 ADDED -21 & -23.	LTA-8 & LM-1		✓			
	3	1.00, 1.10, 2.00 & 3.00					✓	EO A3	IN -11, -13, -15 MOD BLK, REMOVED LM-1, -2 & -3 EFFECTIVITY. IN FLD, B/M & MOD/BLK ADDED -25, -27 & -29.	LM-1, -2 & -3		✓			
	4	1.00 & 1.10					✓	EO A4	FOR -25 ADDED NEXT ASSY LDW280-28791 1 REQD ON LTA-8 & LM-1.	LTA-8 LM-1	NOT	REQD			
	5	1.00 & 1.10					✓	EO A5	IN -25 MOD BLK, ADDED NEXT ASSY LDW280-52791 (1 REQD) FOR LM-2 & -3 ALSO NEXT ASSY LDW280-54791 (1 REQD) FOR LM-4, -5 & -6. REMOVED -27 1 REQD/MOD FROM LM-2 & -3.	LM-2 (32) THRU LM-6 (36)		✓			
	6	1.00 & 1.10						LEO 280-328	FOR DASH NO. 25 ADDED LM-7 THRU LM-15 EFF.	NOTED	NOT	REQD			
	7	1.10							REF EO A3: DESCRIPTION OF EO SHOULD BE "IN -11, -13, -19 ---	LM-1, -2 & -3		✓	RMS	RME	[illegible] 12-8-66

CHG APPROVED						
LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	
A		[illegible]	EP 12/8			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18035	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18035-29	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024	.040 × 3 × 4	T42	88	2D
		LDW280-18035-27	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024	.050 × 4 × 7	T42	88	4F
		LDW280-18035-25	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024	.045 × 3 × 3	T42	88	4D
		LDW280-18035-23	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 × 4 × 7	NONE	88	7A
		LDW280-18035-21	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 × 4 × 7	NONE	88	4A
		LDW280-18035-19	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 × 3 × 4	NONE	88	6D
		LDW280-18035-13	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 × 4 × 7	NONE	88	7F
		LDW280-18035-11	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 × 3 × 3	NONE	88	7D

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP-14-9030
T42	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18035 | A

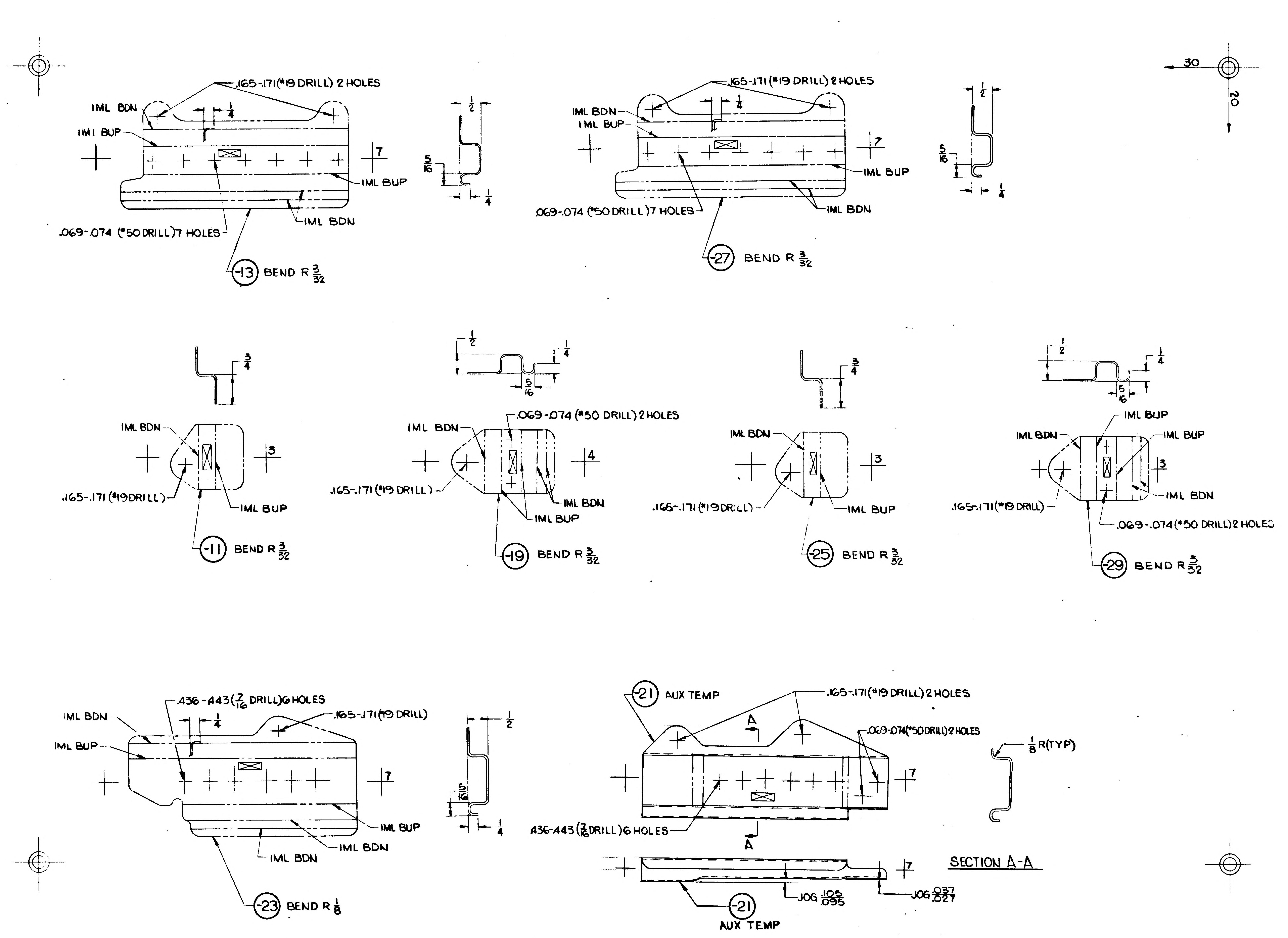
SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.


.165-.171 (#19 DRILL) 2 HOLES
IML BDN
IML BUP
1/4
7
IML BUP
IML BDN
.069-.074 (#50 DRILL) 7 HOLES
-13 BEND R 3/32
1/2
5/16
1/4
-27 BEND R 3/32
30
20
IML BDN
IML BUP
3/4
3
.165-.171 (#19 DRILL)
-11 BEND R 3/32
1/2
1/4
5/16
.069-.074 (#50 DRILL) 2 HOLES
4
IML BDN
IML BUP
-19 BEND R 3/32
3
-25 BEND R 3/32
-29 BEND R 3/32
.069-.074 (#50 DRILL) 2 HOLES
.436-.443 (7/16 DRILL) 6 HOLES
.165-.171 (#19 DRILL)
-23 BEND R 1/8
-21 AUX TEMP
A
.165-.171 (#19 DRILL) 2 HOLES
.069-.074 (#50 DRILL) 2 HOLES
1/8 R (TYP)
.436-.443 (7/16 DRILL) 6 HOLES
SECTION A-A
JOG .105/.095
JOG .037/.027
-21 AUX TEMP

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	√

LDW280-18035A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM: LM	SIZE: F	CODE IDENT NO.: 26512	LDW280-18035	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION 1 K2

NAS 9-1100

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18035 | EO NO. A5
CONTROL INFO NO. LDW280A-0284

REVISE MOD/BLOCK -25, -27

(-25) ADD LEM 2 & 3 N/A LDW280-52791 1 REQD/MOD
ADD LEM 4,5,6. N/A LDW280-54791 1 REQD/MOD

(-27) REMOVE LEM 2 & 3 N/A LDW280-52789 1 REQD/MOD

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG										2
REASON FOR EO TO CORRECT MOD/BLOCK & ADD ADDITIONAL REQUIREMENTS				DESCRIPTION OF EO IN -25 MOD/BLK, ADD N/A LDW280-52791 (1 REQD) FOR LEM 2,3 ALSO N/A LDW280-54791 (1 REQD) FOR LEM 4,5,6 REMOVED -27 1 REQD/MOD FROM LEM 2 & 3										GAEC 4 EO RELEASE FR 9/19/66
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY						
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			✓	DATE		10-4		a.s. 9/9/66		RMC 9-17
				REVISE DWG	RECORD EO	REWORK	SCRAP	9-9-66	VDI	SUPPORT WTS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	9/16/66 ~~CMD~~
LEM	LEM 2-(32	THRU LEM 6(36)		PRIORITY C	DRAWING TITLE ZEE-D/S-UPPER DECK-ELECT SUPT				DRAWING NO. LDW 280-18035					EO NO. A5

ISSUED BY J. LANG / J. BUKOWSKI / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26612
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 328
CONTROL INFO NO. LDW280A-1040

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS * THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER *	CHANGE NUMBER	TITLE
LDW280 -17926	A1	SEE DRAWING
-17927	B1	
-17929	B1	
-17932	A2	
-17938	B2	
-17941	B1	
-17943	A3	
-17948	A1	
-17949	A1	
-17950	A2	
-17958	B1	
-17959	A2	
-17962	B1	
-17966	B1	
-17970	B1	
-17973	A1	
-17977	A1	
-17981	A1	
-17984	B1	
-17985	A2	
-17989	A2	
-17992	B1	
-17997	A1	
-17998	C1	
-17999	A6	
-18035	A6	
-18036	A1	
-18038	A6	
-18046	A4	
-18050	A1	
-18051	A1	
-18062	A1	
-18063	A1	
-18065	B3	
LDW280 -18066	A1	SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: 1921

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D
APPROVED BY / DATE: 8/16/66 V.D.I.; STRESS GROUP 10/17/66; PROJ ENGRG 10/15/66
PRIORITY: C
DRAWING TITLE: NOTER
DRAWING NO.: LE0280

ISSUED BY M. GREY / J. STRAKASCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280

01
NAS 9-1100

H G
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 518
CONTROL INFO NO. LM-2-3386

IN MODEL BLOCK DELETE LM-4(34) THRU LM-15(45) EFFECTIVITY FROM THE DRAWINGS AND THEIR NOTED DASH NUMBERS WHICH ARE LISTED BELOW FOR NEXT ASSEMBLY LDW280-54791 ONLY.

DRAWING NUMBER	DASH NO.	CHANGE NO.	TITLE	EFFECTIVITY
✓ LDW280-17999	-11	A7	SEE DRAWING	**
✓ -18035	-25	B1		**
-18038	-11	B1		**
-18052	-11 & -15	B3		**
-18064	-13	A10		**
LDW280-18101	-15 & -21	A6	SEE DRAWING	**

** DENOTES LM-4(34) THRU LM-15(45) EFFECTIVITY
* DENOTES APPLICABLE DASH NUMBERS IN DESCRIPTION OF EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ 2

REASON FOR EO: PARTS ARE NOT REQUIRED. USAGE RESTRICTED TO EARLIER VEHICLES

DESCRIPTION OF EO: FOR DASH *, DELETED LM-4(34) THRU LM-15(45) FOR NEXT ASSEMBLY LDW280-54791.

GAEC EO RELEASE: JK 02131

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	-1-					3/17/67	3/16/67	3/21/67	3/18/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 518

ISSUED BY LIAISON J. MALONEY 3/16/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18036-21	E		PLATE	CRES SHEET	MIL-S-6721	321 ANL	.050 x 3 x 4 1/8	NONE	NONE	
	-19							.050 x 3 x 3 3/4			
	-17							.050 x 3 x 3 3/4			
	-15							.050 x 3 x 3 7/8			
	-13							.050 x 3 1/2 x 3 1/2			
	LDW280-18036-11	E		PLATE	CRES SHEET	MIL-S-6721	321 ANL	.050 x 3 x 3 3/4	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

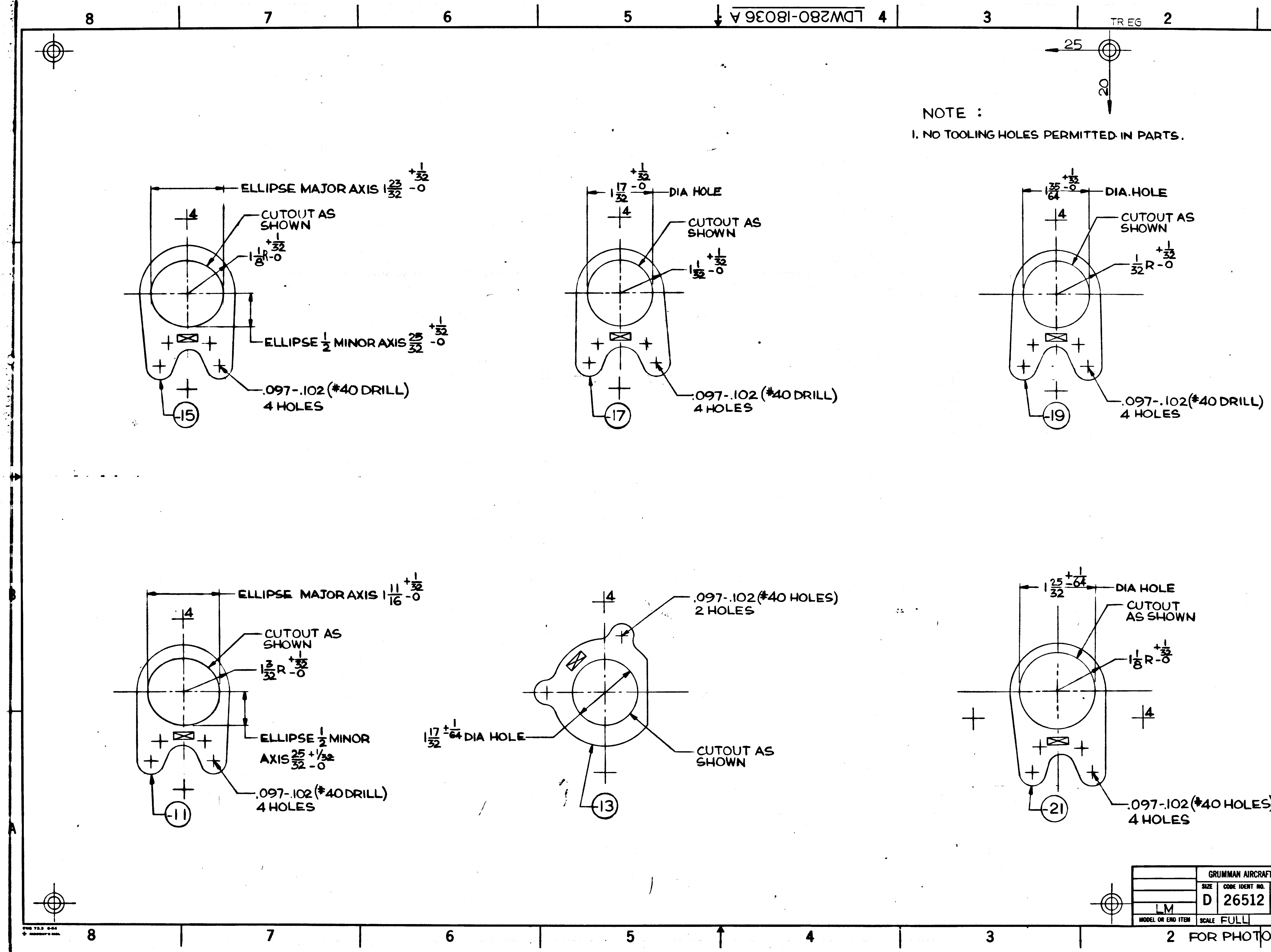
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18036	A
SCALE NONE		SHEET 2.00	

ENG 77.2 5-64

01

NAS 9-1100


LDW280-18036 A
TREG
25
20
ELLIPSE MAJOR AXIS $1\frac{23}{32}\,{}^{+\frac{1}{32}}_{-0}$
CUTOUT AS SHOWN
$1\frac{1}{8}R\,{}^{+\frac{1}{32}}_{-0}$
ELLIPSE $\frac{1}{2}$ MINOR AXIS $\frac{25}{32}\,{}^{+\frac{1}{32}}_{-0}$
.097-.102 (#40 DRILL) 4 HOLES
-15
$1\frac{17}{32}\,{}^{+\frac{1}{32}}_{-0}$ DIA HOLE
CUTOUT AS SHOWN
$1\frac{1}{32}\,{}^{+\frac{1}{32}}_{-0}$
.097-.102 (#40 DRILL) 4 HOLES
-17
$1\frac{35}{64}\,{}^{+\frac{1}{32}}_{-0}$ DIA.HOLE
CUTOUT AS SHOWN
$\frac{1}{32}R\,{}^{+\frac{1}{32}}_{-0}$
.097-.102 (#40 DRILL) 4 HOLES
-19
ELLIPSE MAJOR AXIS $1\frac{11}{16}\,{}^{+\frac{1}{32}}_{-0}$
CUTOUT AS SHOWN
$1\frac{3}{32}R\,{}^{+\frac{1}{32}}_{-0}$
ELLIPSE $\frac{1}{2}$ MINOR AXIS $\frac{25}{32}\,{}^{+1/32}_{-0}$
.097-.102 (#40 DRILL) 4 HOLES
-11
.097-.102 (#40 HOLES) 2 HOLES
$1\frac{17}{32}\,{}^{+\frac{1}{64}}_{-}$ DIA HOLE
CUTOUT AS SHOWN
-13
$1\frac{25}{32}\,{}^{+\frac{1}{64}}_{-}$ DIA HOLE
CUTOUT AS SHOWN
$1\frac{1}{8}R\,{}^{+\frac{1}{32}}_{-0}$
.097-.102 (#40 HOLES) 4 HOLES
-21
4

NOTE :

1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEA..ONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18036	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

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NAS 9-1100

LDW280-18036B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	~	TEST (75)	2
LM	LDW280-16054	LM-9 (39)	1
	LDW280-16054	LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
		LM-4 (34)	1
	LDW280-16054	LM-3 (33)	1
	LDW280-17388	LM-2 (32)	1
		LM-1 (31)	1
		LTA-8 (18)	1
		LTA-5 (15)	1
LM	LDW280-17388	LTA-3 (13)	1

PART NO LDW280-18036-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	~	TEST (75)	1
	LDW280-16054	LM-9 (39)	1
		THRU	
	LDW280-16054	LM-3 (33)	1
	LDW280-17388	LM-2 (32)	1
		LM-1 (31)	1
		LTA-8 (18)	1
		LTA-5 (15)	1
LM	LDW280-17388	LTA-3 (13)	1

PART NO. LDW280-18036-17 — GAEC SCH NO. 50-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	~	TEST (75)	2
LM	LDW280-16055	LM-9 (39)	1
	LDW280-16055	LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
		LM-4 (34)	1
	LDW280-16055	LM-3 (33)	1
	LDW280-17388	LM-2 (32)	1
		LM-1 (31)	1
		LTA-8 (18)	1
		LTA-5 (15)	1
LM	LDW280-17388	LTA-3 (13)	1

PART NO. LDW280-18036-15 — GAEC SCH NO. 50-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	~	TEST (75)	1
	LDW280-16055	LM-14 (44)	1
	.	THRU	1
	LDW280-16055	LM-3 (33)	1
	LDW280-17388	LM-2 (32)	1
		LM-1 (31)	1
		LTA-8 (18)	1
		LTA-5 (15)	1
LM	LDW280-17388	LTA-3 (13)	1

PART NO. LDW280-18036-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	~	TEST (75)	1
LM	LDW280-16055	LM-9 (39)	1
	LDW280-16055	LM-8 (38)	1
	LDW280-16055	LM-7 (37)	1
	LDW280-16055	LM-6 (36)	1
	LDW280-16055	LM-5 (35)	1
	LDW280-16055	LM-4 (34)	1
	LDW280-16055	LM-3 (33)	1
	LDW280-17388	LM-2 (32)	1
		LM-1 (31)	1
		LTA-8 (18)	1
		LTA-5 (15)	1
LM	LDW280-17388	LTA-3 (13)	1

PART NO. LDW280-18036-11 — GAEC SCH NO. 50-1

FOR ADDITIONAL USAGE INFORMATION SEE SH. 1.01

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00	3.00			
REV	B	B		A	A			
SHEET	1.01							
REV	B							
SHEET								
REV								

LAST SECT LTR USED —

LAST DASH NO. USED -21

GRUMMAN REL INFO (A)

PRIM NO. 207 ✓(001) (1) ME-18 3/2/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.010 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY G.KOURY 6-14-66

LAYOUT BY G.KOURY 6-14-66

CHECKED BY

GR.LEADER J.STRAKOSH 6-15-66

VEH.DES.INT W.BISCHOFF 6-17-66

STRUCTURE F.BUNCE 6-24-66

STRUCTURE R.HILDERMANN 6-25-66

WEIGHTS D.ROBESCH 7-11-66

RELIABILITY ~

PROJ ENGR PLUNKETT 7-15-66

REL GROUP BOTTI 7-14-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE-FUEL TANK PROPELLANT
LINES SUPPORT.

SIZE B — CODE IDENT NO. 26512 — LDW280-18036 — B

SCALE NONE — SHEET 1.00 OF 5

ENG 77.1 12-65

SUPERSEDES LDW280-18036 NO CH 2-14-67

01

NAS 9-1100

LDW280-18036 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	~	TEST(75)	2
LM	LSK280-11123	DVT (70)	1
	LDW280-16057	LM-9(39)	1
	LDW280-16057	LM-8(38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5(35)	1
		LM-4(34)	1
	LDW280-16057	LM-3(33)	1
	LDW280-17388	LM-2(32)	1
		LM-1(31)	1
		LTA-8(18)	1
		LTA-5(15)	1
LM	LDW280-17388	LTA-3(13)	1

PART NO. LDW280-18036-21

GAEC SCH NO.

SH REV STATUS FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET

REV

SHEET

REV

SHEET

REV

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL INFO

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS - DECIMALS – ANGLES

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO.

DRAWN BY

LAYOUT BY

CHECKED BY

PROJ ENGR

REL GROUP

LINE ITEM

DOCUMENTATION TYPE

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18036 B

SCALE NONE

SHEET 1.01 OF

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REV. NO CHANGE ADDED SH 1.10 TOM MAYBO 2-14-67						
A	1	1.00						LEO280-328	ADDED LM-7 THRU LM-15 EFFECTIVITIES TO LDW280-18036-11, -13, -15, -17, -19 & -21	LM-7 THRU LM-15	NOT	REQD	TOM MAYBO 2-14-67 EG		
	2	1.00						E.O. A2	FOR-11,-13,-15,-17,-19&-21 REVISED N/A WAS LDW280-17388	LM-3 THRU LM-15	NOT	REQ'D			
									FOR-19 & -21. 1 EACH REQD WAS 2 EACH REQD O.J.	LTA-3,-5,-8 LM-1 THRU LM-15		-19 -21			
B	1	1.00 1.01							INC LEO-280-700 ADDED SH. 1.01	TEST(75)			LEO GAVRIL 3-24-69 E.C.G.		
	2	1.00 1.01		B					INC EO B2.	LM-6(36) THRU LM-15(45)					
	3	1.01							INC LEO 280-878	DVT(70)					
	4	1.00 1.01		B					INC LEO 280-976	LM-6(36)					
	5	1.00 1.01		B					INC LEO 280-1050	LM-6(36)					
	6	1.00 & 1.01							INC EO B6	LM-6, LM-7 & LM-8			R. NISBET 3-24-69 H.D.	J.V.	
	7	1.00							INC LEO 280-1219						
	8	1.00							INC LEO 280-1238	LM-15					
	9	1.00 1.01							INC LEO 280-1278	LM-9					3-26-69
									⑫						

CHG APPROVED											
LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY					
B											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18036	B
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 878
CONTROL INFO NO. LDW280B2219

IN M/B TO PART NOS.* LISTED BELOW, EFF DVT(70), ADD N/A AS NOTED **, AND ADD QUANTITIES AS NOTED ‡

DWG/PART NO. *	TITLE	* * NEXT ASSY	ADD QTY ‡ REQD	EO NO.
LDW 280 M16174 -11	FLANGE	LSK280-11123	1	A3
M16199 -11	FLANGE		1	A2
M17655 -1	RETAINER		1	B4
M17655 -3	RETAINER		1	
-17388-119D50-28	TUBE		1	L5
-17388-459D50-24	TUBE		1	
-18036-21	SUPPORT		1	B3
LDW280 -18063-11	SUPPORT		1	A5
LDW280-53622-3	SUPPORT INSTL	LSK280-11123	1	B4
-17765 -15	STRAP	LDW280-53622	1	B5
-17765 -19	STRAP		1	
-17766 -11	CHANNEL		1	B4
-17766 -13			1	
-17766 -15			2	
M17488-1	WASHER		6	B4
M17562-1	FITTING		1	B6
LDW280 M17563-3	FITTING	LDW280-53622	1	B5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2715

(5)

REASON FOR EO: TO CREATE TEST ARTICLE FOR LTP 905-21001

DESCRIPTION OF EO: ON - * ADD N/A **, & QTY REQD ‡ FOR DVT(70)

GAEC EO RELEASE: JK 3/2/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

				RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY									
DATE	-	2/28/68 VDI	3-1-68 EQUIPS		2/28/68	2/29		2/28/68	3/1/68

PRIORITY: C

DRAWING TITLE: SEE ABOVE *

DRAWING NO.: LEO 280

EO NO. 878

3/1/68
ISSUED BY A. RICHER X1332 / P. THORDSEN X1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1644
CONTROL INFO NO. LDW280B8306

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40)
ADD LTA-11 (23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANITY.

DRAWING № *	TITLE	CHANGE №
LDW280-17840	SEE DWG	C1
973		B3
997		B2
18036		C1
062		B1
—		
—		
784		A2
810		B1
LDW280-18858	SEE DWG	B1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 91 & 92 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-27-69 JK 8/28/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP NOT REQ'D

APPROVED BY: VDI 7-30; SUPPORT; RELIAB. GROUP; GROUP LEADER 7/31/69; STRESS GROUP N 8-2-69; LIAISON ENGRG; PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1644

9-26-69
ISSUED BY G. HANSMANN X87222 (ZF) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1772
CONTROL INFO NO. LDW280B9383

IN MODEL BLOCK FOR THE FOLLOWING DASH NUMBERED PARTS OF THE LISTED DRAWINGS ADD LTA-5/R(159) EFFECTIVITY, APPROPRIATE NOTED NEXT ASSEMBLY AND QUANTITY REQD PER NEXT ASSEMBLY

DRAWING NUMBER	DASH NUMBER *	QTY REQD PER N/A	NEXT ASSEMBLY**	CHANGE NUMBER.
LDW280-16001	-7	1	LDW280-16057	C5
-16001	-9	1	-16055	
-16002	-1	1	-16097	C1
-16002	-1	1	-16098	
-16014	-11, -13	2 EACH	-16001	A3
-16046	-17	2	-16057	D3
-16046	-15	2	-16055	
-16046	-19	4	-16097	
-16046	-19	2	-16098	
-17876	-11	1	-16001	B6
-17876	-13	2	-16001	
-17876	-15, -21	1 EACH	-16057	
-17876	-19, -23	1 EACH	-16055	
-17909	-11, -13	1 EACH	-16098	C1
-17909	-15	2	-16098	
-17914	-11	1	-16098	C1
-17914	-15	1	-16097	
-17926	-15	1	-16097	C1
-17992	-19, -23	1 EACH	-16057	C4
-17992	-21	1	-16055	
-18036	-13	1	-16055	C2
M16302	-11	1	-16098	C1
M16302	-11	1	-16097	
M16303	-11	1	-16055	B4
M16303	-11	1	-16057	
M17350	-1	1	-16098	D2
M17351	-1	1	LDW280-16097	C2
M16104	-1	2	LDW200-55529	B2
-16097	-1	1	LDW200-55529	B4
-16098	-1	1	LDW200-55529	B2
LDW280P16247	-11	4	LDW200-55529	A5

LFM

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☒ LCD3994 DKG8 (5)

REASON FOR EO: ADDITION OF REQUIREMENTS FOR LTA-5/R (159)

DESCRIPTION OF EO: FOR DASH * ADDED NEXT ASSY **, LTA-5/R(159) EFFECTIVITY

GAEC EO RELEASE: (2) JK 12/5

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LFM508		LTA-5/R(159)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					NM			
DATE	11/24/69			11/24/69	11/25/69		11/26/69	12/1/69

PRIORITY C | DRAWING TITLE SEE DRAWINGS | DRAWING NO. LEO280 | EO NO. 1772

12-05-69
ISSUED BY HUGH RYAN 11-21-69 X86046 SECTION VDI(EQUIP LINES) GROUP NO. 332 PL 25

01
NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28790	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
		LM-4 (34)	1
		LM-3 (33)	1
		LM-2 (32)	1
		LM-1 (31)	1
LM	LDW280-28790	LTA-8 (18)	1
PART NO. LDW280-18038-13		GAEC SCH NO. 50-2	

LDW280-18038 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28791	LM-1(31)	1
LM	LDW280-28791	LTA-8 (18)	1
LM	LDW280-52791	LM-3 (33)	1
LM	LDW280-52791	LM-2 (32)	1
LM	LDW280-54791	LM-15(45)	1
PART NO. LDW280-18038-11 CONT		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
	LDW280-54791	LM-4 (34)	1
	LDW280-28790	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12 (42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6(36)	1
		LM-5 (35)	1
		LM-4 (34)	1
		LM-3(33)	1
		LM-2(32)	1
		LM-1 (31)	1
LM	LDW280-28790	LTA-8(18)	1
PART NO. LDW280-18038-11		GAEC SCH NO. 50-2	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	1.10	2.00	300				
REV	A	A	A	A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-19	PRIM NO. 207	FR/021 MP.4 12/11/5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100 LINE ITEM 1 DOCUMENTATION TYPE II

DRAWN BY	RAGAS		
LAYOUT BY	BUKOWSKI		
CHECKED BY			
GRP LDR	J.STRAKOSCH 7-8-66		
VDI	PAULSRUD 7-9-66		
STRUCTURES	F. BUNCE 7-15-66	PROJ ENGR	R.CARBEE 7-22-66
STRUCTURES	HILDERMAN 7-16-66	REL GROUP	C.BOTTI 7-26-66
WEIGHTS	D.ROBESCH 7-21-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE BRACKET SUPT-LOWER DECK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18038	A
SCALE NONE		SHEET 1.00 OF 5	

ENG 77.1 12-65

SUPERCEDES LDW280-18038 NO CHANGE 7-22-66

01 NAS 9-1100

LDW280-18038 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28791	LM-1 (31)	4
LM	LDW280-28791	LTA-8 (18)	4
PART NO. LDW280-18038-19		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28790	LM-15 (45)	4
		LM-14 (44)	4
		LM-13 (43)	4
		LM-12 (42)	4
		LM-11 (41)	4
		LM-10 (40)	4
		LM-9 (39)	4
		LM-8 (38)	4
		LM-7 (37)	4
		LM-6 (36)	4
		LM-5 (35)	4
		LM-4 (34)	4
		LM-3 (33)	4
		LM-2 (32)	4
		LM-1 (31)	4
LM	LDW280-28790	LTA-8 (18)	4
PART NO. LDW280-18038-15		GAEC SCH NO. 50-2	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET									
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL INFO

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO.

LINE ITEM

DOCUMENTATION TYPE

DRAWN BY

LAYOUT BY

CHECKED BY

PROJ ENGR

REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18038	A
SCALE	NONE	SHEET 1.01	OF

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
									RETRACE NO CHANGE LAST REV NO CHANGE LOFTED DWG WAS DIM. ADDED SH 1.10 & 1.01 J. MAURO 11-21-66						
A	1	1.00 & 1.01 & 3.00						E.O. A1	ADDED -17 TO F/D, B/M & N/A BLOCK	LTA-8 (18) LM-1 (31)	NOT	REQ'D	J.MAURO 11-21-66		
	2	1.01 2.00 3.00						E.O. A2	-17 REPLACED BY -19 1 3/8 DIMENSION WAS 1 3/16. IN MODEL BLOCK 4 REQ'D WAS 1 REQ'D			-17			
	3	1.00						E.O. A3	IN N/A BLOCK ADDED FOR -11 LTA-8 & LM-1 REQMTS		NOT	REQ'D			
	4	1.00 & 1.01						E.O. A4	IN M B FOR -11, -13 & -15 ADDED LM -1 REQUIREMENTS & -15 NO. REQ'D WAS 2 REQ'D FOR LTA-8						
	5							E.O. A5	ADDED -11 (2/MOD) FOR LM 2 THRU 6, ADDED -13 (1/MOD) FOR LM-2 THRU 6 REMOVE 1/MOD FOR LTA-8 LM-1, ADDED -15 (4/MOD) FOR LM 2 THRU 6	LTA-8 (18) LM-1 (36) THRU -6 (36)					
	6	1.00 & 1.01						LEO 280-328	FOR DASH -11, -13 & 15 ADDED LM-7 THRU LM-15 EFF	LM-7 THRU 15					
	7	3.00							ON -11 & -15 ADDED (.097-.102) #40 DRILL 2 HOLES IN EACH ON -13 ADDED (.097-.102) #40 DRILL (4 HOLES)	NOTED	NOT	REQ'D			
	8	1.00							REF E.O. A5 ON-13 REMOVED N/A LDW280-28791 DOES NOT APPLY	NOTED	NOT	REQ'D			
	9	3.00							REF E.O. A1 ON-19 (.069-.071) #40 DRILL SHOULD BE (.097-.102) #40 DRILL		NOT	REQ'D			

CHG APPROVED

LTR	~~GROUP LDR~~	V D I	[illegible]	W T S	Project
A		[illegible]	Feb 1/67		[illegible] 12/8

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18038	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18038-19	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 3 x 4	NONE	88	
		-15	E	↕	↕	↕	↕	.032 x 2 x 3	↕	↕	
		-13	E	↕	↕	↕	↕	.032 x 3 x 3	↕	↕	
		LDW280-18038-11	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x 2 x 3	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

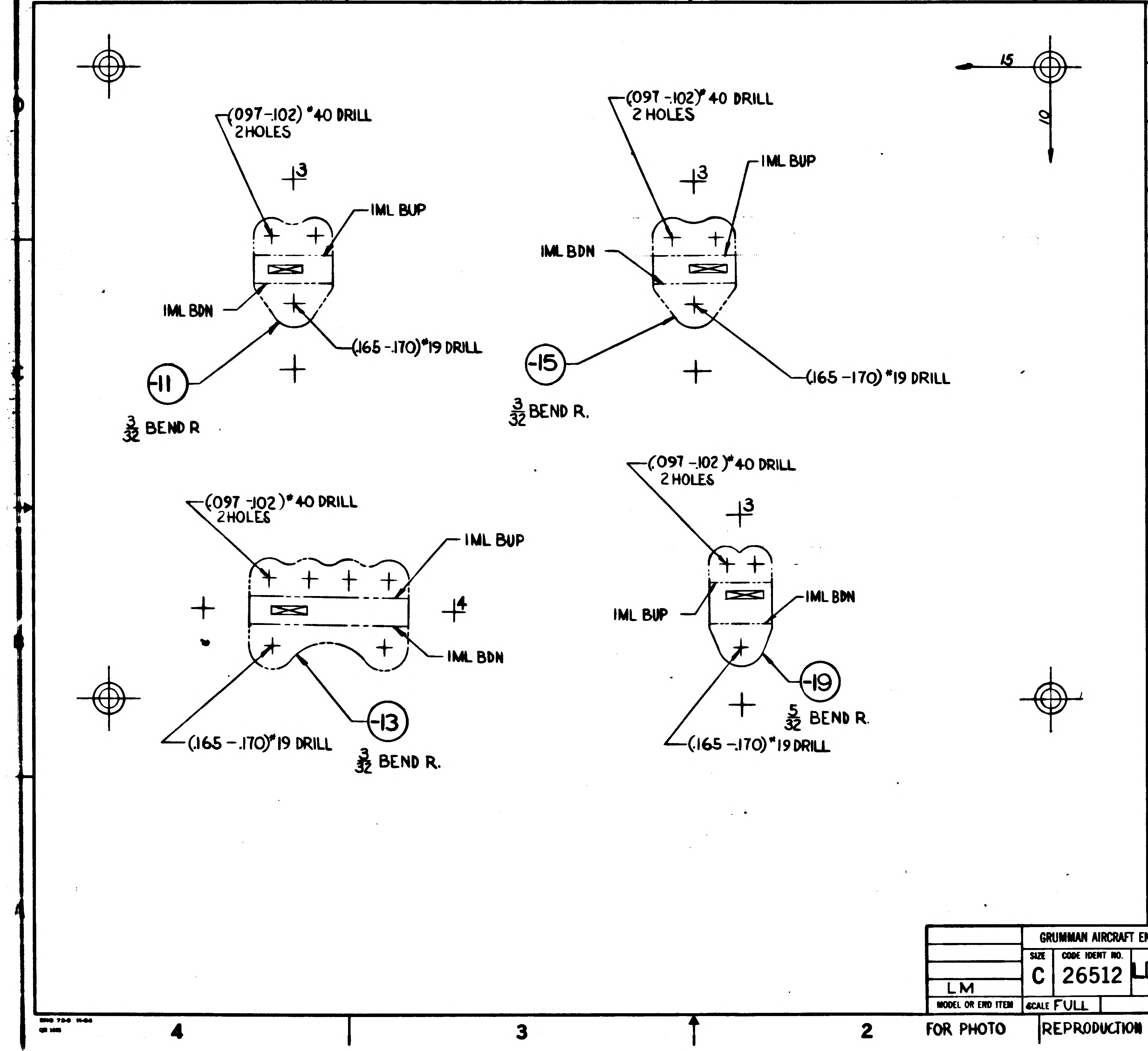
SIZE	CODE IDENT NO.		
B	26512	LDW280-18038	A

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


4
3
2
1
T.L.
15
10
(.097-.102) #40 DRILL
2 HOLES
3
IML BUP
IML BDN
IML BDN
(.165-.170) #19 DRILL
-11
3/32 BEND R.
(.097-.102) #40 DRILL
2 HOLES
3
IML BUP
IML BDN
-15
(.165-.170) #19 DRILL
3/32 BEND R.
(.097-.102) #40 DRILL
2 HOLES
IML BUP
4
IML BDN
(.165-.170) #19 DRILL
-13
3/32 BEND R.
(.097-.102) #40 DRILL
2 HOLES
3
IML BUP
IML BDN
-19
5/32 BEND R.
(.165-.170) #19 DRILL

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER ST[illegible]ART NUMBER AND AL[illegible]ARKINGS IN REGION M[illegible]D ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		R.
LM	C	26512	LDW280-18038	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 518
CONTROL INFO NO. LM -3386

IN MODEL BLOCK DELETE LM-4(34) THRU LM-15(45) EFFECTIVITY FROM THE DRAWINGS AND THEIR NOTED DASH NUMBERS WHICH ARE LISTED BELOW FOR NEXT ASSEMBLY LDW280-54791 ONLY.

DRAWING NUMBER	DASH NO.	CHANGE NO.	TITLE	EFFECTIVITY
LDW280-17999	-11	A7	SEE DRAWING	**
-18035	-25	B1		**
-18038	-11	B1		**
-18052	-11 & -15	B3		**
-18064	-13	A10		**
LDW280-18101	-15 & -21	A6	SEE DRAWING	**

** DENOTES LM-4(34) THRU LM-15(45) EFFECTIVITY
* DENOTES APPLICABLE DASH NUMBERS IN DESCRIPTION OF EO

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	2

REASON FOR EO: PARTS ARE NOT REQUIRED. USAGE RESTRICTED TO EARLIER VEHICLES

DESCRIPTION OF EO: FOR DASH *, DELETED LM-4(34) THRU LM-15(45) FOR NEXT ASSEMBLY LDW280-54791.

GAEC EO RELEASE: JK C

02131

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~
DATE	-1-					3/17/67	3/16/67	3/21/67	3/18/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 518

ISSUED BY LIAISON J. MALONEY 3/16/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18038

EO NO. B2

CC INFO LDW280A8107

IN MOD BLK FOR-13
REMOVE LM2 & LM3 EFF.

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	LCD-1843

5

REASON FOR EO: TO PREVENT DAMAGE TO DIFFERENTIAL TRANSDUCERS

DESCRIPTION OF EO: IN M/B FOR-13 REMOVED LM2 & LM3 EFF

① GAEC EO RELEASE C
JK 7/25/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2(32) LM3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP -13

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				—				
DATE	7/24/67			—	7/24/67		7/24	7-24-67

PRIORITY: C

DRAWING TITLE: CLIP D/S-ELECT LINES BRKT SUPT

DRAWING NO.: LDW280-18038

EO NO.: B2

ISSUED BY DON RAGAS X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18038 EO NO. B3
CONTROL INFO NO. LDW280B3094

FOR -15 EFF LM-4(34) THRU LM-15(45) QTY/MOD S/B 6 REQD
(WAS 4 REQD)

RESTRICT -13 TO LTA-8(18), LM-1(31) EFF
WAS LTA-8(18), LM-1(31); LM-4(34) THRU LM-15(45)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2011 PKG 17 CCA 668

REASON FOR EO: REROUTE ELEC LINES DUE TO MODULARIZED EQUIPMENT

DESCRIPTION OF EO: FOR -15 EFF LM-4(34) THRU LM-15(45) 6/MOD WAS 4/MOD; RESTRICTED -13 TO LTA-8(18), LM-1(31) EFF WAS LTA-8(18), LM-1(31), LM-4(34) THRU LM-15(45)

GAEC EO RELEASE: C H.F 4/30/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/23/68			4/23/68	w/s W/A		4/25/68	4-29-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S BRACKET ~~SUPT~~ ZFE -LWR DECK	LDW280-18038	B3

5-3-68
ISSUED BY G. BARNES/P. THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 — EO NO. 1332
CONTROL INFO NO. LDW280B 7422

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO. ✓	CHANGE NO	DWG NOMENCLATURE
LDW280-18038 ✓	B4 ✓	SEE DWG
-18049	B2	↑
-18050	B3	
-18051	B5	
-18054	B2	
-18064	B3	
-18065	D2	
-18066	A3	
-18067	A4	↓
LDW280-18068	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG. 8-9 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: HF 4/24

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/9/69			4-2-69	4/8/69		4/9/69	4/4/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1332

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CO... IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1526
CONTROL INFO NO. LDW280B 8105

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-17998	SEE DWG	E2
18038		B5
18088		B4
18093		B4
18095		B3
110		B2
118		A5
119		A5
LDW280-18140	SEE DWG	B2

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3890 PKG 99 Pg 25 & 26 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23 [redacted]) REQMTS

GAEC EO RELEASE: 8-5-69; 8/9/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT
APPROVED BY	PET				N			Bauman
DATE	7/29/69			7/29/69	8/2/69		8/1/69	8-9-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1526

8-22-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18038
EO NO. B6
CONTROL INFO NO. LDW280B8551

IN MOD BLK FOR -15

N/A LDW280-60677 WAS LDW280-28790 LM10(40) THRU 14(44) & LTA 11(23)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 91

(5)

REASON FOR EO: NEW INSTL DWG REQD FOR LMMP

DESCRIPTION OF EO: IN MOD BLK FOR -15 N/A LDW280-60677 WAS LDW280-28790 FOR LM10(40) THRU 14(44) & LTA 11(23)

GAEC EO RELEASE: K 12/16/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 11(23)	
LM		LM10(40) THRU 14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	OGT				WJH			
DATE	12-15-69			12/13/69	12-15-69		12/16/69	12/16/69

PRIORITY: C

ZEE

DRAWING TITLE: D/S ELECTRICAL BRKT SUPPT

DRAWING NO. LDW280-18038

EO NO. B6

CDR 122969

ISSUED BY Don Ragas X86046 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18041-11	E	PLATE	TITANIUM SHEET	(SEE NOTE 2) MIL-T-9046	6Al 4V	.050 X 3/4 X 2 1/8	FP	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FP	PENETRANT INSP	MIL-I-6866

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18041	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

LDW280-18041 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23702	LTA-3 (13)	1
PART NO. LDW280-18041-11		GAEC SCH NO.	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	300					
REV	B	B	A	B					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO (A) B		
LAST DASH NO. USED	-11	PRIM NO. 207	JK(001) mp-168-9/27	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 | LINE ITEM 1 | DOCUMENTATION TYPE II

DRAWN BY	A. CINO 6-22-66	RELIABILITY	
LAYOUT BY	A CINO 6-22-66		
CHECKED BY			
GRLEADER	J. STRAKOSCH 6-24-66		
VEH DES INT	L PAULSRUD 6-25-66		
STRUCTURE	NM FEB 6-27-66	PROJ ENGR	PLUNKETT 7-13-66
STRUCTURE	HILDERMAN 6-27-66	REL GROUP	BOTTI 7-14-66
WEIGHTS	R ROBESCH 7-11-66		

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE - R.T.G. SUPPORT
LOWER INB'D

SIZE	CODE IDENT NO.		
B	26512	LDW280-18041	B
SCALE NONE		SHEET 1.00 OF 4.00	

(8)

ENG 77.1 12-65

THIS DWG SUPERSEDES LDW280-18041 NO CHANGE 7-14-66

0 1

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHG LAST REV NO CHANGE LOFTED DWG WAS DIM. ADDED SH 1.10 C.CASTELLANO 9-27-66						
A	1	1.00 1.10 2.00 & 3.00						LEO280-274 ®	ON-11 ADDED LEM-3 EFFECTIVITY	NOTED	NOT	REQ'D	CSTLNO 9-27-66		
B	1	1.00 & 1.10				✓		EO B1 ®	FROM-11 REMOVED EFF LM-4(34), LM-5(35), LM-6(36).	LM-4 THRU LM-6		-11	KOCHLING 9-13-68	9/19/68	
	2	1.00 & 1.10				✓		LEO280-695 LCD1861 CCA498-2	FOR-11 REMOVED LM-3(33) REQMTS	LM-3 (33)		✓			
	3	1.00, 1.10 3.00				✓		LCD1433 CCA586 LCD 1021-26} CCA183 & 498}	FROM-11 REMOVED LTA-8(18) & DVT(70) REQ (NOT REQD ON NEXT HIGHER ASSY LDW280-23702. G. Murphy WCG	LTA-8 DVT (70)		✓			

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	RELIABILITY
A	TST 9/18	9/19		9/19/68	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

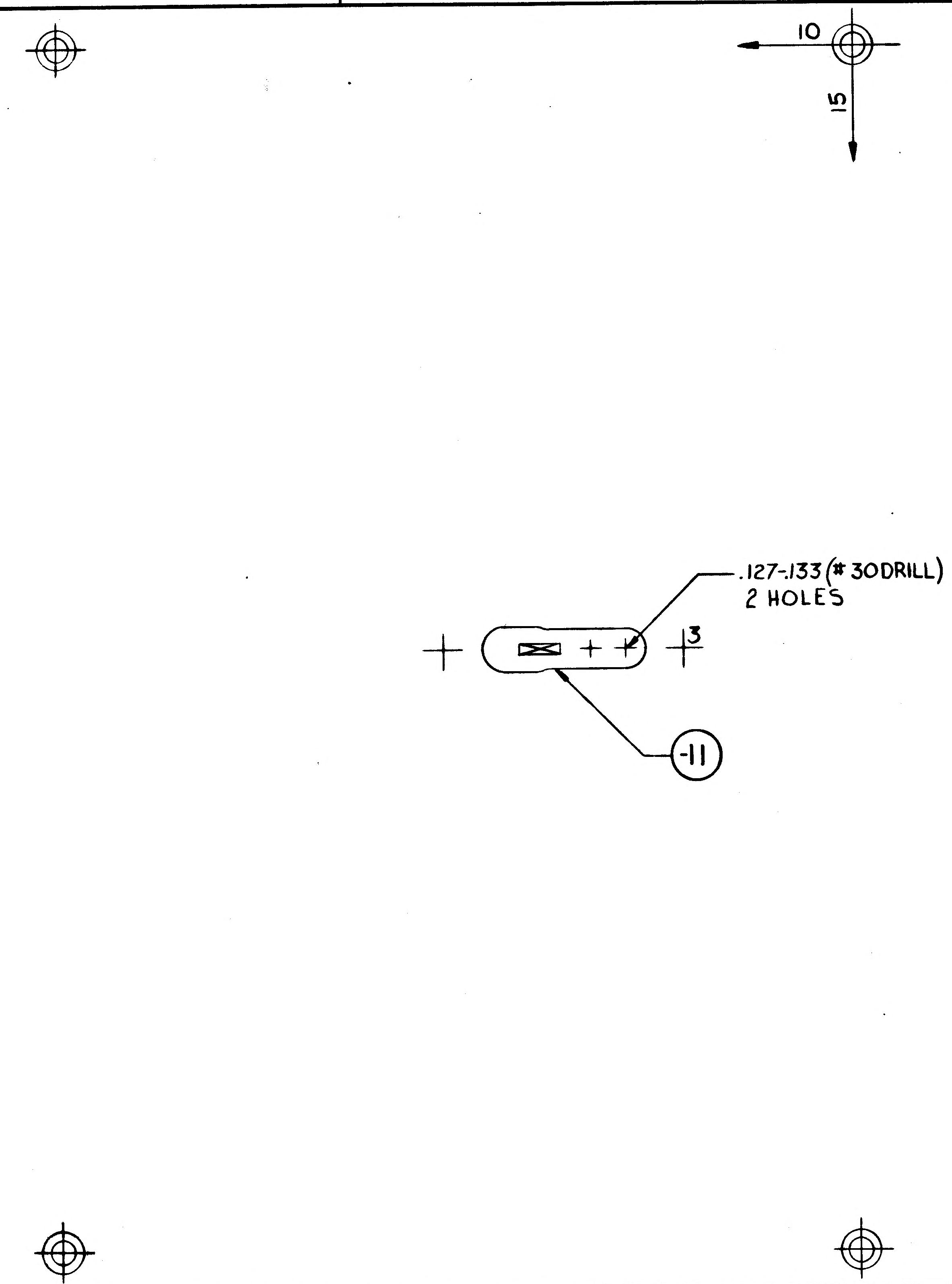
SIZE	CODE IDENT NO.		
B	26512	LDW280-18041	B Ⓑ
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

TR. OK
W.M.



NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. MATERIAL TO BE IN THE SOLUTION HEAT TREATED CONDITION.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 $\sqrt{}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 $\sqrt{}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL $\sqrt{}$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE C	CODE IDENT NO. 26512	LDW280-18041	B
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

01

NAS 9-1100

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 274
CONTROL INFO NO. LDW280A0393

ADD LEM-3(33) EFFECTIVITY TO ALL DASH NO.S OF THE FOLLOWING DWGS.

SAME QUANT. & N/A AS LEM-4

	DWG NO.	DASH NO.*	CHANGE NO.	TITLE
✓	LDW280M17671	ALL	B1	SEE DWG.
✓	M17610	ALL	C2	
✓	M17669	ALL	B2	
✓	M17617	ALL	C2	
✓	M17616	ALL	B2	
✓	M17615	ALL	B1	
✓	M17614	ALL	B1	
✓	M17544	-5&-7	A5	
✓	-18041	ALL	A1	
	-17885	ALL	B1	
				SEE DWG
	LDW280-23702	ALL	A2	SEE DWG

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

22

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: ON -* ADDED LEM-3 EFFECTIVITY

GAEC EO RELEASE: FR 9/26/66

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LEM		LEM-3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	[illegible]	[illegible]				[illegible] 9/14/66	[illegible]	[illegible]
DATE	9/14/66	104				9/14	9-26-66	9/14/66
	V.D.I.	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT.~~

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LE0280
EO NO.: 274

ISSUED BY M. GREY / J. STRAKOSCH X1153 SECTION V.D.I. GROUP NO. 280 PL 35 EMF

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER EMF A

DWG. NO. LDW280-18041
EO NO. B1
CONTROL INFO NO. LDW280A5877

FROM -11

REMOVE EFFECTIVITY LM-4(34), -5(35), -6(36)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD19-975 2

REASON FOR EO: REDESIGNED R.T.G. SUPPORTS (PCA-498) LCD19-975

DESCRIPTION OF EO: FROM -11 REMOVED EFF [illegible] LM-4(34), -5(35), -6(36)

GAEC EO RELEASE: C
JK 4/10/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM			LM-4(34)
LM		LM-5(35)	LM-6(36)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			-11	DATE	3/18/67			3/18/67	NM 3/20/67		3/27/67	4/10/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE – DESCENT STAGE R.T.G. SUPPORT – LOWER INBD	LDW280-18041	B1

ISSUED BY K. BEACH / J. STRAKOSCH X 1153 SECTION VD1 GROUP NO. 280 PL 25

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 EO NO. 695
CONTROL INFO NO. LDW280A 8672

FOR DASH NO'S *NOTED ON THE FOLLOWING DWGS, REMOVE LM-3(33) EFF

DWG	TITLE	CHANGE
✓ LDW280-18041-11 *	SEE DWG	B2
-18134-11-13-17-19*		B2
-18135-11-13-15*		B2
-18136-11-13-15-17*		B4
-18143-11-13-15*		B4
M17614-5 *		B4
M17615-5 *		C2
M17616-3 *		B4
M17617-3 *		C5
~~M17670-3~~ ✓		
~~M17671-1~~ ✓	SEE DWG	
M17696-1 *	SEE DWG	A5
LDW280 M17697-3 *	SEE DWG	B3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD ~~[illegible]~~ 1861 ok CCA 498-2 5

REASON FOR EO: RTG SUBSTITUTION REF (CCA 498 AMEND 2)

DESCRIPTION OF EO: FOR * REMOVED LM-3(33) REQMTS

GAEC EO RELEASE: JK 8/28/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
✓			✓	Jap 8/22/67				— —	NM 8/23/67		8/21/67	8-28-67
				8/21/67	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	695

8/26 ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW 280-18092
EO NO. B1
CONTROL INFO NO. LM 5-9232

IN M/B: REVISE QTY OF -15 & -17:

N/A LDW280-25700 (5 REQD) WAS LDW280-25700 (1 REQD)
LDW280-23700 (5 REQD) LDW280-23700 (1 REQD)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: ADDITIONAL SKINS NEEDED DUE TO INTERFERENCE WITH LANDING GEAR.

DESCRIPTION OF EO: REVISED QTY FOR -15 & -17 (5 REQD) FOR LDW280-25700 & LDW280-23700, WAS (1 REQD).

GAEC EO RELEASE: VE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	
LM		LM 1 THRU LM 6	(31 THRU 36)

DRAWING CHANGE REQD: REVISE DWG / ; RECORD EO
DISPOSITION OF PARTS: REWORK / ; SCRAP

APPROVED BY								
APPROVED BY					ES	JH	RMC	
DATE	9/29/66				9/29	9-30-66	10-8	10-7-66
9-29-66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SKIN D/S METROID SHIELD TANK COVERS
DRAWING NO.: LDW280-18092
EO NO.: B1

ISSUED BY D. RAGAS X6454 SECTION VDI GROUP NO. 335 PL 5

EMF

01 NAS 9-1100

LDW280-18044 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28638	LTA8(18)	2 EA
PART NO. LDW280-18044-17-19		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28638	LTA8(18)	3 EA
PART NO. LDW280-18044-13-15		GAEC SCH NO. 52	

WORK PKG FUNCTION #110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1:00	1:10	2:00	3:00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A		
LAST DASH NO. USED	-19	PRIM NO.	JK(001)	
		207	MP-5 5/29/7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	F. LEGIDO 5/22/67	WEIGHTS	D. ROBESCH 7/11
LAYOUT BY	FISCHLER 6/21/66	RELIABILITY	S
CHECKED BY			
GRPLDR	J. STRACKUS 6/23/66		
VDI	PAULSRUD 6/25/66		
STRUCTURE	M.S. F.E.B. 6/27	PROJ ENGR	PLUNKETT 13 JULY
STRUCTURE	HILDERMAN 6/27	REL GROUP	BOTTI 7/14/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE ENGINE COMPARTMENT
UPPER SEPARATION SIMULATOR

SIZE	CODE IDENT NO.		
B	26512	LDW280-18044	A
SCALE NONE		SHEET 1:00 OF 4	

ENG 77.1 12-65

SUPERSEDES LDW280-18044 "NO CHG" 6-21-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHG - LAST REV. "NO CHG." ADDED SH. 1:10 F. LEGIDO 5/22/67						
A	1	1:00 & 2:00						E.O. A1	IN M/B, F/D, & B/M ADDED -13, -15, -17, -19. REMOVED -11. REVISED DWG TITLE: "CLIP" WAS "TUBE."	LTA 8(18)		-11	F. LEGIDO 5/22/67		

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18044	A
SCALE NONE			SHEET 1:10

ENG 77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18044-19	E	CHANNEL	AL ALY SH	QQ-A-250/4	2024	.050x 1 x 3	T42	76	
								LDW280-18044-17	E	CHANNEL	AL ALY SH	QQ-A-250/4	2024	.050x 2 x 3	T42	76	
								LDW280-18044-15	E	DOUBLER	AL ALY SH	QQ-A-250/4	2024-T3	.020x 2 x 3	NONE	76	
								LDW280-18044-13	E	BRACKET	AL ALY SH	QQ-A-250/4	2024	.050x 2 x 14	T42	76	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						76	ALODINE	LSP14-9010
						T42	HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18044	A

SCALE NONE

SHEET 2:00

ENG 77.2 7-65

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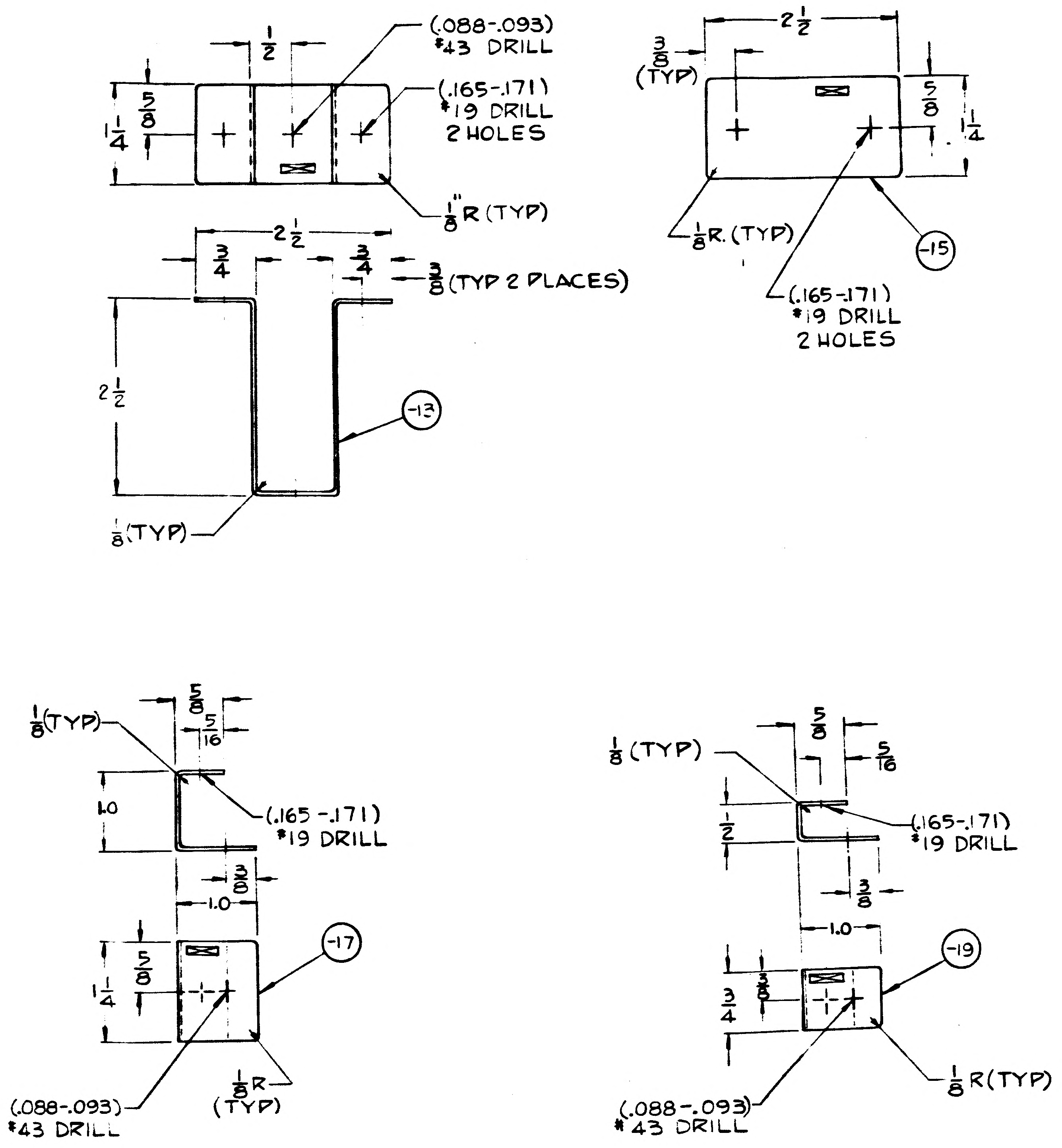
NAS 9-1100


(.088-.093)
#43 DRILL
1/2
(.165-.171)
#19 DRILL
2 HOLES
5/8
1 1/4
1/8" R (TYP)
2 1/2
3/4
3/4
3/8 (TYP 2 PLACES)
2 1/2
-13
1/8 (TYP)
2 1/2
3/8 (TYP)
5/8
1 1/4
1/8 R. (TYP)
-15
(.165-.171)
#19 DRILL
2 HOLES
1/8 (TYP)
5/8
5/16
(.165-.171)
#19 DRILL
1.0
3/8
1.0
5/8
1 1/4
-17
(.088-.093)
#43 DRILL
1/8 R
(TYP)
1/8 (TYP)
5/8
5/16
(.165-.171)
#19 DRILL
1/2
3/8
1.0
-19
3/8
3/4
(.088-.093)
#43 DRILL
1/8 R (TYP)

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18044	A
	SCALE FULL		SHEET 3 [illegible]	

LDW280-18044

LDW280-18044

01

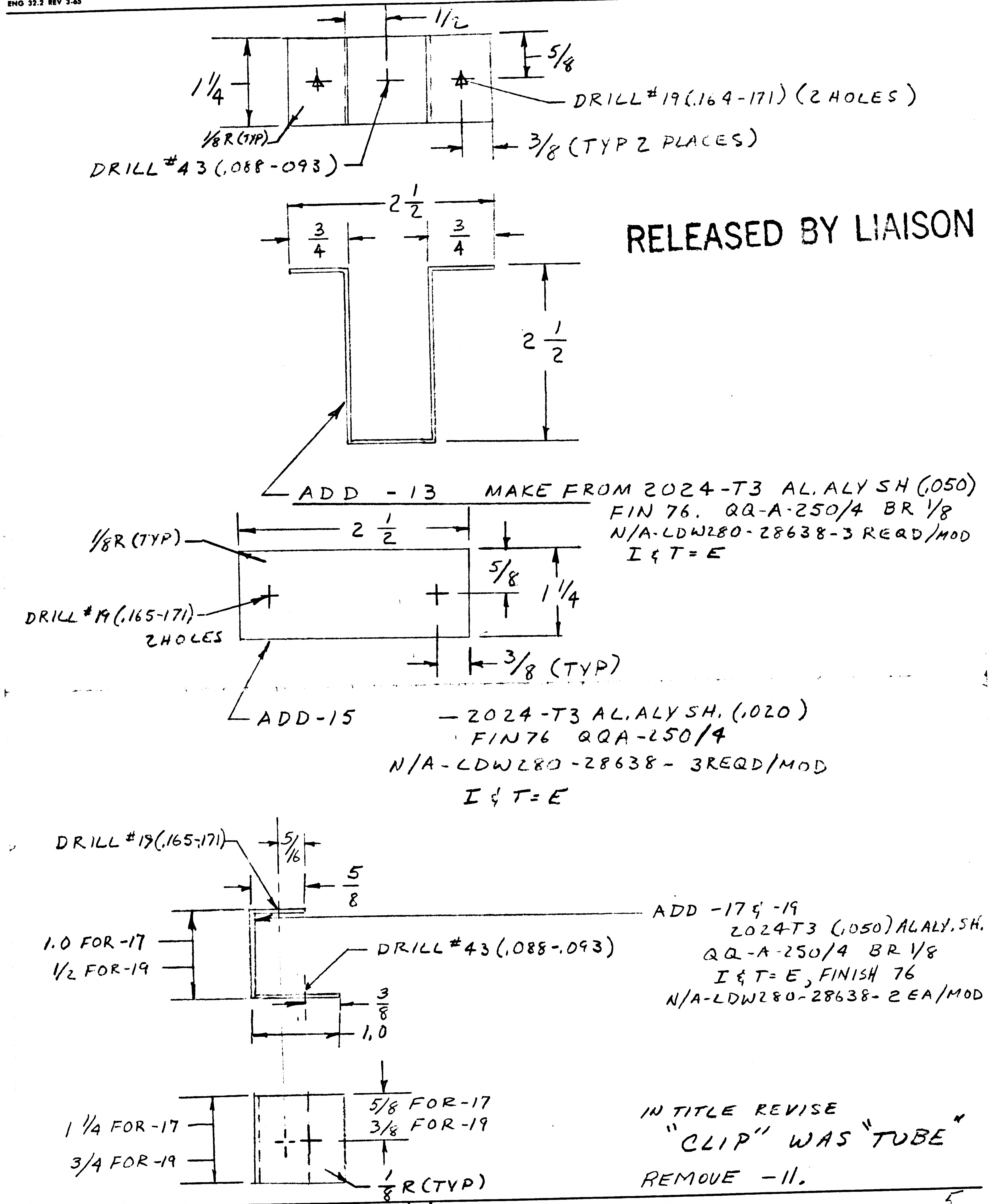
NAS 9-1100

A

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 - 18044		EO NO. A1
CONTROL INFO NO. LM5-13027		



1/2
5/8
1 1/4
DRILL #19 (.164-.171) (2 HOLES)
1/8 R (TYP)
DRILL #43 (.088-.093)
3/8 (TYP 2 PLACES)
2 1/2
3/4
3/4
2 1/2
1/8 R (TYP)
2 1/2
5/8
1 1/4
DRILL #19 (.165-.171) 2 HOLES
3/8 (TYP)
DRILL #19 (.165-.171)
5/16
5/8
1.0 FOR -17
1/2 FOR -19
DRILL #43 (.088-.093)
3/8
1.0
1 1/4 FOR -17
3/4 FOR -19
5/8 FOR -17
3/8 FOR -19
1/8 R (TYP)

RELEASED BY LIAISON

ADD -13 MAKE FROM 2024-T3 AL. ALY SH (.050)
FIN 76. QQ-A-250/4 BR 1/8
N/A-LDW280-28638-3 REQD/MOD
I & T = E

ADD-15 — 2024-T3 AL. ALY SH. (.020)
FIN76 QQA-250/4
N/A-LDW280-28638- 3REQD/MOD
I & T = E

ADD -17 & -19
2024-T3 (.050) AL ALY. SH.
QQ-A-250/4 BR 1/8
I & T = E, FINISH 76
N/A-LDW280-28638- 2 EA/MOD

IN TITLE REVISE
"CLIP" WAS "TUBE"
REMOVE -11.

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO TO SEPARATE NITROGEN LINE FROM THE HEATER SKINS.	DESCRIPTION OF EO 1) M/B, 7D & 8/M ADDED -13, -15, -17, -19 REMOVED -11 REVISED DWG. TITLE: "CLIP" WAS "TUBE"	GAEC EO RELEASE 5 C JS 3-30-7 —

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		LTA 8 (18)		✓			-11

APPROVED BY	WT			—				
DATE	3/18/67			—	3/21/67	3-28-67	3-30-67	3-28-67
/	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S - ENG. COMP. UPPER. SEP. SIMULATOR	LDW280-18044	A1

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01
NAS 9-1100

01
NAS 9-1100

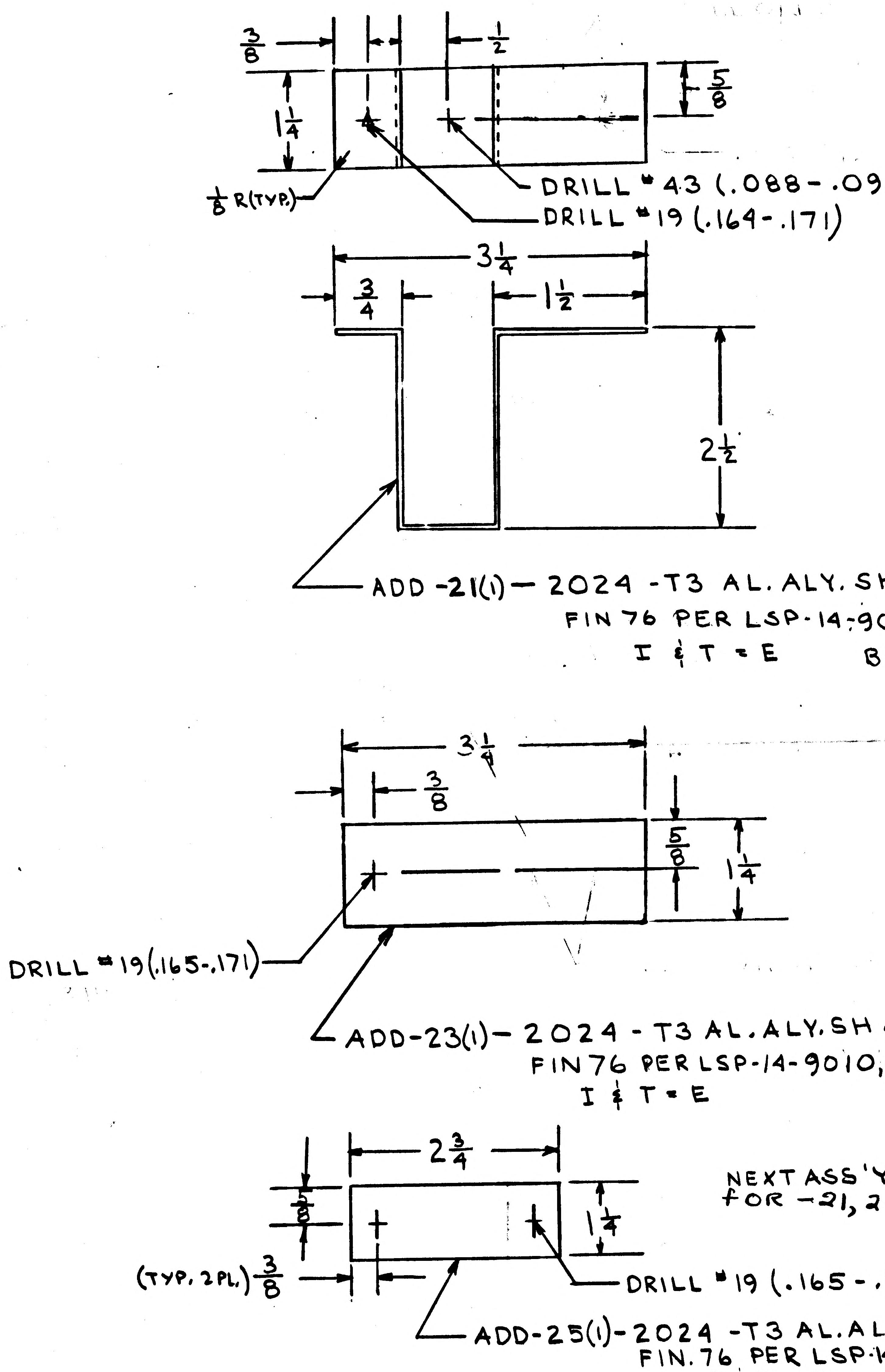
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18044		EO NO. B1
CONTROL INFO NO. LM 52-0572		

ADD -21, -23, -25 IN F/D & B/M

Revised Qty of -13 & -15
1 EA. Req WAS 3 EA. Req
For N/A LDW 280-28638



DRILL #43 (.088-.093)
DRILL #19 (.164-.171)

ADD -21(1) — 2024-T3 AL. ALY. SH. (.040)
FIN 76 PER LSP-14-9010 QQ-A-250/4
I & T = E BR 1/8

DRILL #19 (.165-.171)

ADD-23(1) — 2024-T3 AL. ALY. SH. (.040)
FIN 76 PER LSP-14-9010, QQ-A-250/4
I & T = E

NEXT ASS'Y LDW280-28638
for -21, 23, 25 QTY. 1

DRILL #19 (.165-.171) (2 HOLES)

ADD-25(1)-2024-T3 AL. ALY. SH. (.040)
FIN. 76 PER LSP-14-9010. QQ-A-250/4
I & T = E

(52)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		[redacted]							LCD 20180	
REASON FOR EO A/S WHEN MATED TO D/S HITS LINES LCD 20180						DESCRIPTION OF EO IN B/M & F/D ADDED -21, -23, -25 Revised Qty of -13 & -15 1 EA. WAS 3 EA.							GAEC EO RELEASE JK	
MODEL	EFFECTIVITY					DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	RKW		—	RKW
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.			✓			✓	DATE	10/11/67	10/26/67	—	10/11/67
LM		LTA-8(18)				REVISE DWG	RECORD EO	REWORK	SCRAP		MSC	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER
						PRIORITY C	DRAWING TITLE CLIP D/S ENG. COMP. UPPER SEPARATION SIMULATOR						DRAWING NO. LDW280-18044	EO NO. B1

STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COST~~	
		10-12-67	10-17-67	

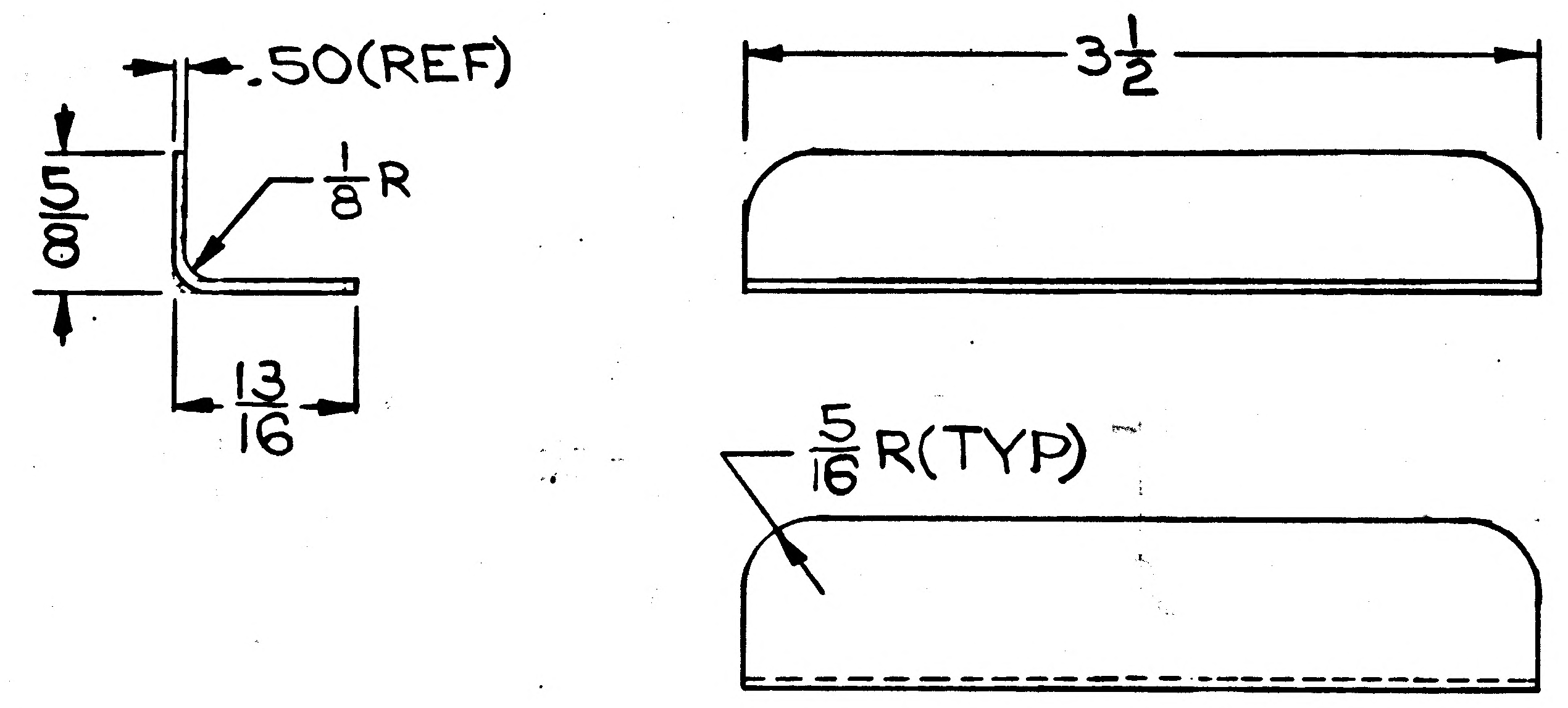
ISSUED BY WHITSIT /VOIT SECTION PROJ. ENG. GROUP NO. 827 PL 52

ENG 32.2 REV 3-65

*

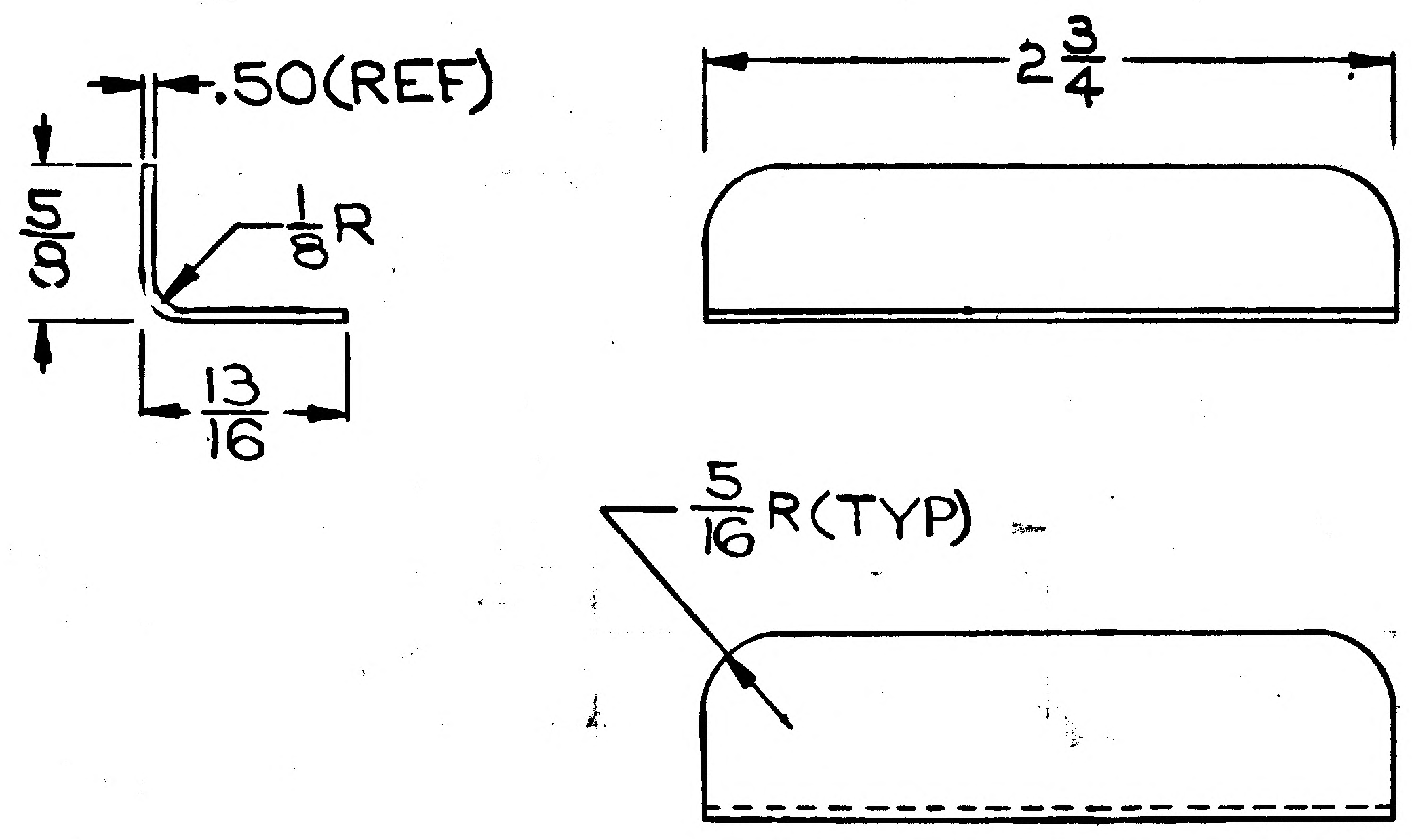
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-16045 | EO NO. A1
CONTROL INFO NO. LDW280-A0385



LDW280-16045-11 (13 REQ/VEH)

MAKE FROM .040 AL ALLOY SH
2024T3 BARE QQ-A250/4,
HT: NONE, FINISH: NO. 88 PER
LSP14-9030, BEND RADIUS: 1/8,
I&T=E
NEXT ASSEMBLY LDW280-53020 LEM-3(33)
LDW280-54020 LEM-4(34) THRU LEM-15(45)



LDW280-16045-13 (3 REQ/VEH)

MAKE FROM .040 AL ALLOY SH
2024T3 BARE QQ-A250/4,
HT: NONE, FINISH: NO. 88 PER
LSP14-9030, BEND RADIUS: 1/8,
I&T=E
NEXT ASSEMBLY LDW280-53020 LEM-3(33)
LDW280-54020 LEM-4(34) THRU LEM-15(45)

± 1/64 FRACTION
±.010 DECEMIAL } DWG TOLERANCE
± 1/2° ANGLE

* DWG NOT MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE SUPPORT FOR PLUMBING	EO. A1 INITIAL DWG RELEASE PART MADE PER EO.	FK 9/19/6

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JW	LBY	—	—	MJM		RME	
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	*		NOT	REQD	DATE	9/16/66	9/26/66			4-16-66		9-19	9/19/66
LEM		LEM-3(33)	THRU	REVISE DWG	RECORD EO	REWORK	SCRAP	✓	YD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
LEM		LEM15(45)		PRIORITY C	DRAWING TITLE BRACKET- RCS LINES SUPPORT ASCENT STAGE						DRAWING NO. LDW280-16045					EO NO. A1

ISSUED BY GIRARDIN x6566 SECTION EQUIP LINES VDI GROUP NO. 332 PL 35 EMF

NAS 9-1100

01

LDW280-18046 A

PART NO. LDW280-18046-15 CONT.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23585	LM-15(45)	12
LM	LDW280-23585	LM-14(44)	12
LM	LDW280-23585	LM-13(43)	12

PART NO. LDW280-18046-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23585	LM-15(45)	24
LM	↑	LM-14(44)	24
LM		LM-13(43)	24
LM		LM-12(42)	24
LM		LM-11(41)	24
LM		LM-10(40)	24
LM		LM-9(39)	24
LM		LM-8(38)	24
LM		LM-7(37)	24
LM		LM-6(36)	24
LM		LM-5(35)	24
LM		LM-4(34)	24
LM		LM-3(33)	24
LM	↓	LM-2(32)	24
LM	LDW280-23585	LTA-3(13)	24
LM	LDW280-25585	LM-1(31)	24
LM	LDW280-25585	LTA-8(18)	24
LM	LDW280-25585	LTA-5(15)	24

PART NO. LDW280-18046-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23585	LM-12(42)	12
LM	↑	LM-11(41)	12
LM		LM-10(40)	12
LM		LM-9(39)	12
LM		LM-8(38)	12
LM		LM-7(37)	12
LM		LM-6(36)	12
LM		LM-5(35)	12
LM		LM-4(34)	12
LM		LM-3(33)	12
LM	↓	LM-2(32)	12
LM	LDW280-23585	LTA-3(13)	12
LM	LDW280-25585	LM-1(31)	12
LM	LDW280-25585	LTA-8(18)	12
LM	LDW280-25585	LTA-5(15)	12

PART NO. LDW280-18046-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO. 50-2	REQD PER MODULE OR END ITEM
LM	LDW280-23585	LM-15(45)	4
LM	↑	LM-14(44)	4
LM		LM-13(43)	4
LM		LM-12(42)	4
LM		LM-11(41)	4
LM		LM-10(40)	4
LM		LM-9(39)	4
LM		LM-8(38)	4
LM		LM-7(37)	4
LM		LM-6(36)	4
LM		LM-5(35)	4
LM		LM-4(34)	4
LM		LM-3(33)	4
LM	↓	LM-2(32)	4
LM	LDW280-23585	LTA-3(13)	4
LM	LDW280-25585	LM-1(31)	4
LM	LDW280-25585	LTA-8(18)	4
LM	LDW280-25585	LTA-5(15)	4

WORK PKG FUNCTION NO.110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00		3.00			
REV	A	A		A		A			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO

PRIM NO. 207 VC(001) MP-14A-6/26/7

UNLESS OTHEPWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY L.DIXON 4-10-67
RELIABILITY
LAYOUT BY G.HANSMANN
CHECKED BY D.FASS 4-11-67
VEH DES INT 4/11/67
STRUCTURE
STRUCTURE 6/20
WEIGHTS
PROJ ENGR
REL GROUP 6-28-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WASHER
DESCENT STAGE-PORTABLE LIFE SAVING SYSTEM BATTERY INSTL.

SIZE B
CODE IDENT NO. 26512
LDW280-18046 A Ⓐ
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

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NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1							EOA1	INITIAL DWG RELEASE PARTS MADE PER EO		NOT	REQD	L.DIXON 4/10/67		6-24-67
	2	1.00, 1.10 2.00 & 3.00						EOA2	IN FLD & B/M, ADDED LDW280-18046-15	LTA-3;5&-8 LM-1 THRU LM-6	✓				
	3	1.00, 1.10 & 3.00						EOA3	REF EOA2, IN FLD ADDED DRILL #20 (.160-.166) DIA (REF) REVISED M/B FOR -11 ADDED N/A LDW280-23585 & LDW280-25585, 4 REQD WAS 16, FOR -15 ADDED N/A LDW280-23585 & LDW280-25585, 12 REQD. SCRAP-11 WAS REWORK			-11			
	4	1.00 & 1.10						LE0280-328 Ⓛ	FOR -11, -13 & -15 ADDED LM-7 THRU LM-15 EFF.	LM-7 THRU -15	NOT	REQD			

CHG APPROVED LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	PROJ.				
A	A	4/19/67	4/20/67								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18046	A

SCALE NONE SHEET 1.10

Ⓐ

ENG 77.16 3-66

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NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18046-15	E	WASHER	AL. ALLOY SH	QQ-A-250/12	7075-T6	.063 × 1 × 1	NONE	88	
		LDW280-18046-13	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.063 × 1 × 2	NONE	88	
		LDW280-18046-11	E	WASHER	AL. ALLOY SH	QQ-A-250/12	7075-T6	.063 × 1 × 1	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18046	A

SCALE NONE

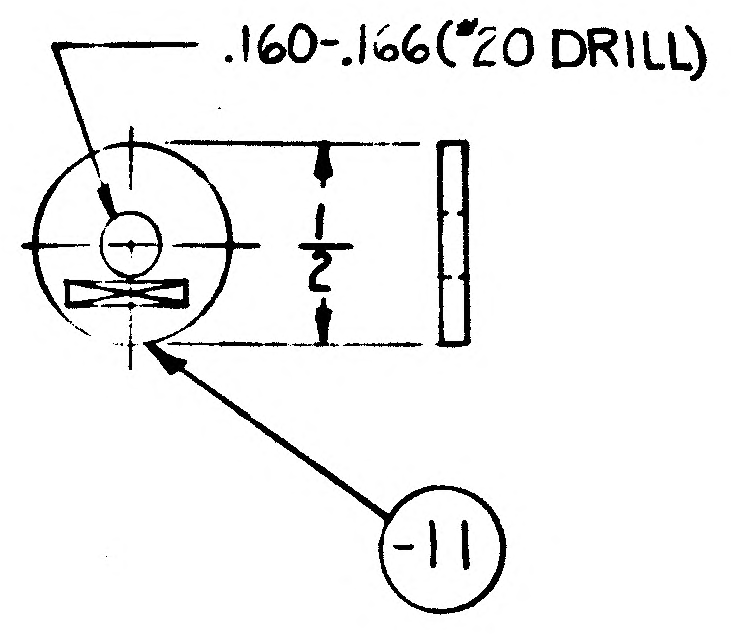
SHEET 2.00

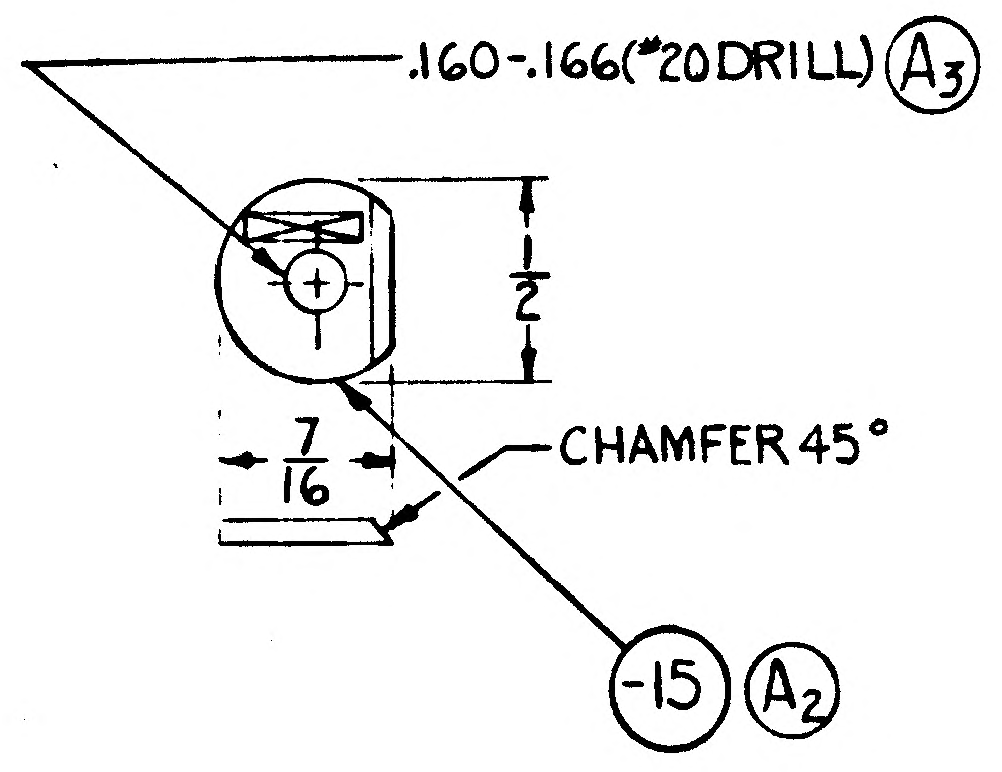
Ⓐ

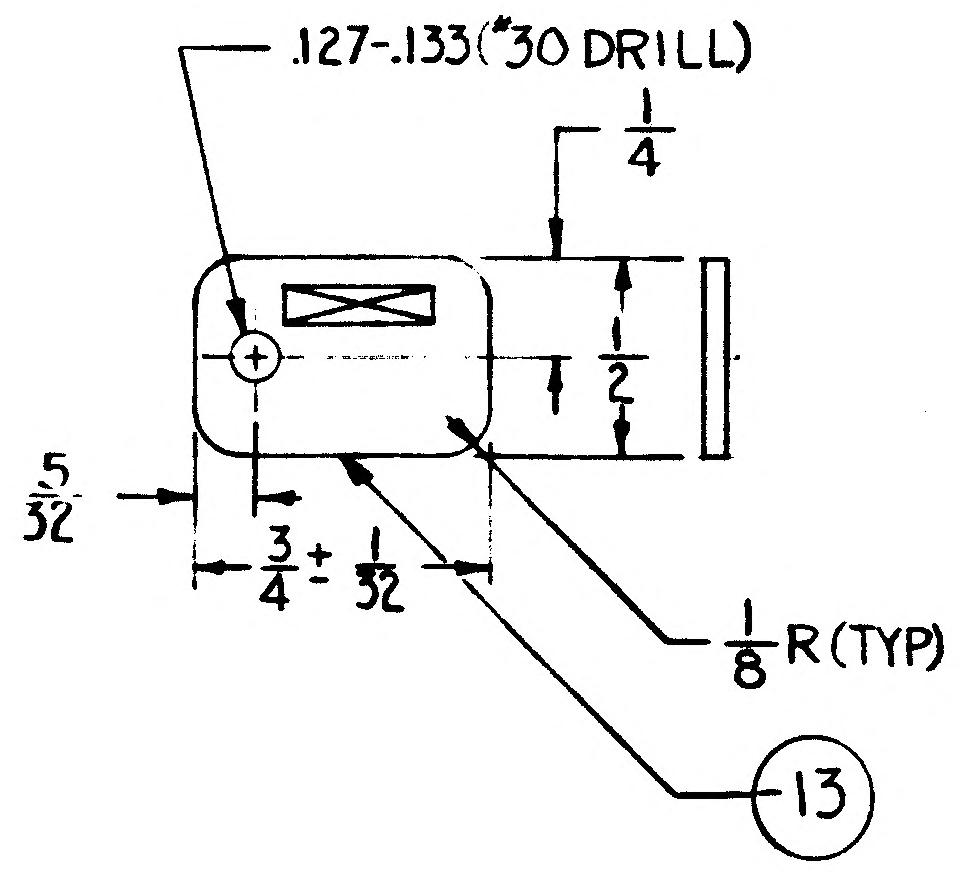
ENG 77.2 7-65

0´1

NAS 9-1100







MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE C	CODE IDENT NO. 26512	LDW280-18046	A
MODEL OR END ITEM	SCALE 2/1		SHEET	

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-63

DWG NO. LE0280 | EO NO. 328
CONTROL INFO NO. LDW280A-1040

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS * THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER *	CHANGE NUMBER	TITLE
✓ LDW280 -17926	A1	SEE DRAWING
✓ -17927	B1	
✓ -17929	B1	
✓ -17932	A2	
✓ -17938	B2	
✓ -17941	B1	
✓ -17943	A3	
-17948	A1	
-17949	A1	
-17950	A2	
-17958	B1	
-17959	A2	
-17962	B1	
-17966	B1	
-17970	B1	
-17973	A1	
-17977	A1	
-17981	A1	
-17984	B1	
~~-17985~~	A2	
-17989	A2	
-17992	B1	
-17997	A1	
-17998	C1	
-17999	A6	
-18035	A6	
-18036	A1	
-18038	A6	
-18046	A4	
-18050	A1	
-18051	A1	
-18062	A1	
-18063	A1	
-18065	B3	
LDW280 -18066	A1	SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

2

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

Ⓡ GAEC EO RELEASE: 1921

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY / DATE: V.D.I. 10/7/66 | SUPPORT | RELIAB. GROUP | GROUP LEADER | STRESS GROUP 10/7/66 | LIAISON ENGRG | PROJ ENGRG 10/15/66 | EDP

PRIORITY: C

DRAWING TITLE: NOTER

DRAWING NO.: LE0280

EO NO.

ISSUED BY M.GREY/J.STRAKASCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LEO280	EO NO.	764
CONTROL INFO NO.	LDW280A9926		

FOR THE FOLLOWING PARTS, REMOVE LTA-3(13) EFF:

DRAWING NO.	DASH NO.*	TITLE	NEXT ASSY	CHG NO.
LDW280-17733	-17	SEE DWG	LDW280-23530	B5
-17736	-13			A5
-17182	-21			B5
-17278	-21			D8
M17328	-3			A5
M17342	-9		LDW280-23530	C4
-23585	-1		LDW280-23509	C6
-17213	-19,-21,-23,-27 & -31		LDW280-23585	C4
-18046	-11,-13 & -15			B2
-17436	-11,-15,-17 & -21			B5
M17281	-1			B3
M17282	-5 & -7			B4
M17283	-5			C3
M17284	-1			A4
M17463	-1			A4
M17547	-2			A5
M17277	-1			A4
M17278	-3			B5
LDW280P17790	-11, -13 & -19	SEE DWG	LDW280-23585	D3

01

NAS 9-1100

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 2011 CCA 668

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REVISED EFF FOR MODULAR EQUIP STOWAGE	FOR-*, REMOVED LTA-3 EFF.	JL 10/27

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQ'D: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

		CREW SUPPORT PROVISION	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				JAS			WRB	
DATE	10/20/67			10/20/67	10/21/67		10/21	10-24-67
D	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO-280	764

10/30
ISSUED BY S. TAMRES/J. STRAKOSCH x 7033 SECTION VDI GROUP NO. 335 PL 25

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
								RETRACED NO	CHG LAST REV NO CHG LOFTED DWG WAS DIMENSIONED DW ADDED SH.1.10 J. INGOGLIA 6-6-67 D.J.					7-27-67	

CHG APPROVED											
LTR	GROUP LDR	VEHDESINT	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY					
			7/25	7/26							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18047

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18049 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53794	LM-15(45)	1EA
		LM-14 (44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11 (41)	1EA
		LM-10 (40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7 (37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
		LM-3(33)	1 EA
LM	LDW280-53794	LM-2(32)	1EA

PART NO LDW280-18049-11, -13 -15 & -17

GAEC SCH NO. 50-1

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00			3.00			
REV	A	A	A			A			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -17

GRUMMAN REL-INFO A

PRIM NO. 207 FX(001) MP14A 10/11/6 EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY G. KOURY 6-24-66
LAYOUT BY G. KOURY 6-24-66
CHECKED BY
GR. LEADER J. STRAKOSCH 6-28-66
VEH DES INT W. BISCHOFF 7/1
STRUCTURES R. HILDERMAN 7/1
STRUCTURES
WEIGHTS D. ROBESCH 7/11
RELIABILITY
PROJ ENGR PLUNKETT 13 JULY
REL GROUP C. BOTTI 7-13-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-AFT R.H. BEAM PANEL
CONTROL ASSEMBLY CA-3 SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18049 A
SCALE NONE
SHEET 1.00 OF 4.00

ENG 77.1 12-65

THIS DWG SUPERSEDES DWG LDW280-18049 NC

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	[illegible] APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE, LAST REV LTR "NO CHANGE" ADDED SH 1.10, LOFTED DWG WAS DIM DWG S.AQUILA 9-22-66						
A	1	1 & 1.10						LE0280-218	IN M/B FOR -11, -13 & -15 ADDED LM-2 EFF.	NOTED	NOT	REQ'D	S.AQUILA 9-22-66		
	2	1 & 1.10							ADDED LM-2 EFF FOR -17	NOTED	NOT	REQ'D			

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCT	STRUCT	WEIGHTS
A		JHS 10/8/66	10/10		S. Albano 9/27

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18049	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18049-17	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040 × 1 1/4 × 2 7/8	T6	88	
		-15		ANGLE				.040 × 3 1/8 × 7 1/4			
		-13		ZEE				.040 × 3 1/8 × 13			
		LDW280-18049-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.040 × 3 1/4 × 11 3/4	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18049	A
SCALE NONE		SHEET 2.00	

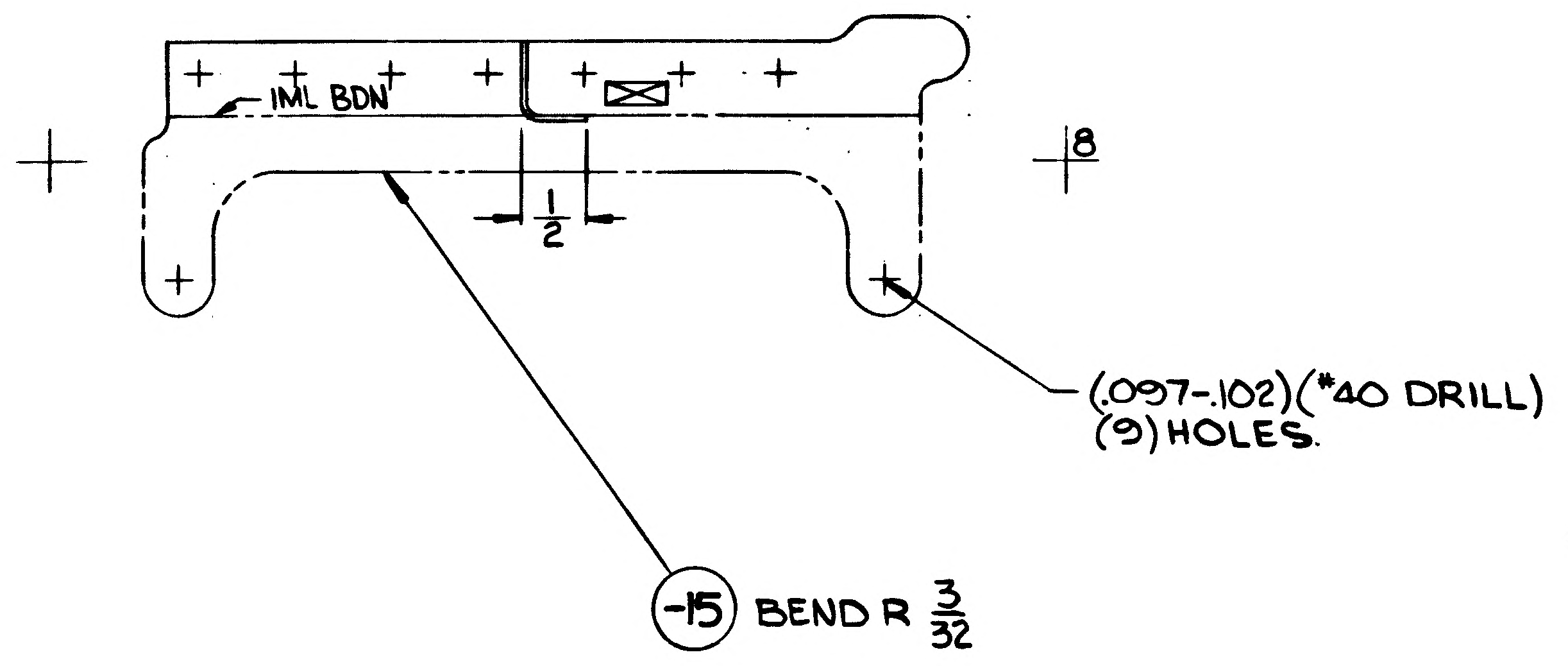
ENG 77.2 7-65

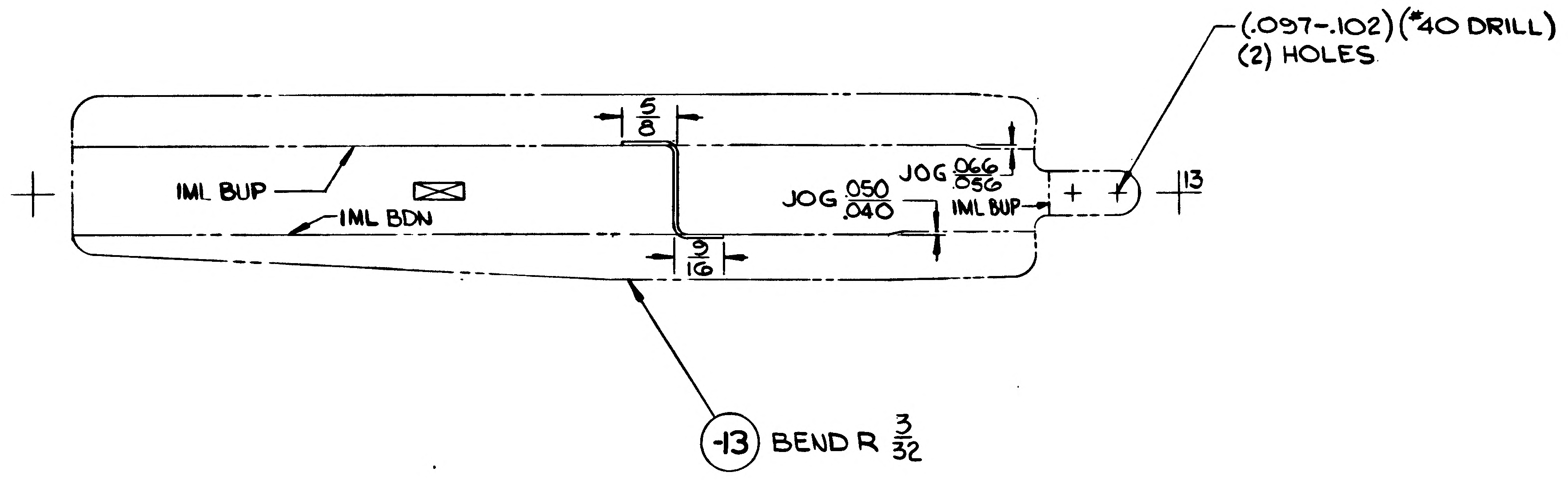
01

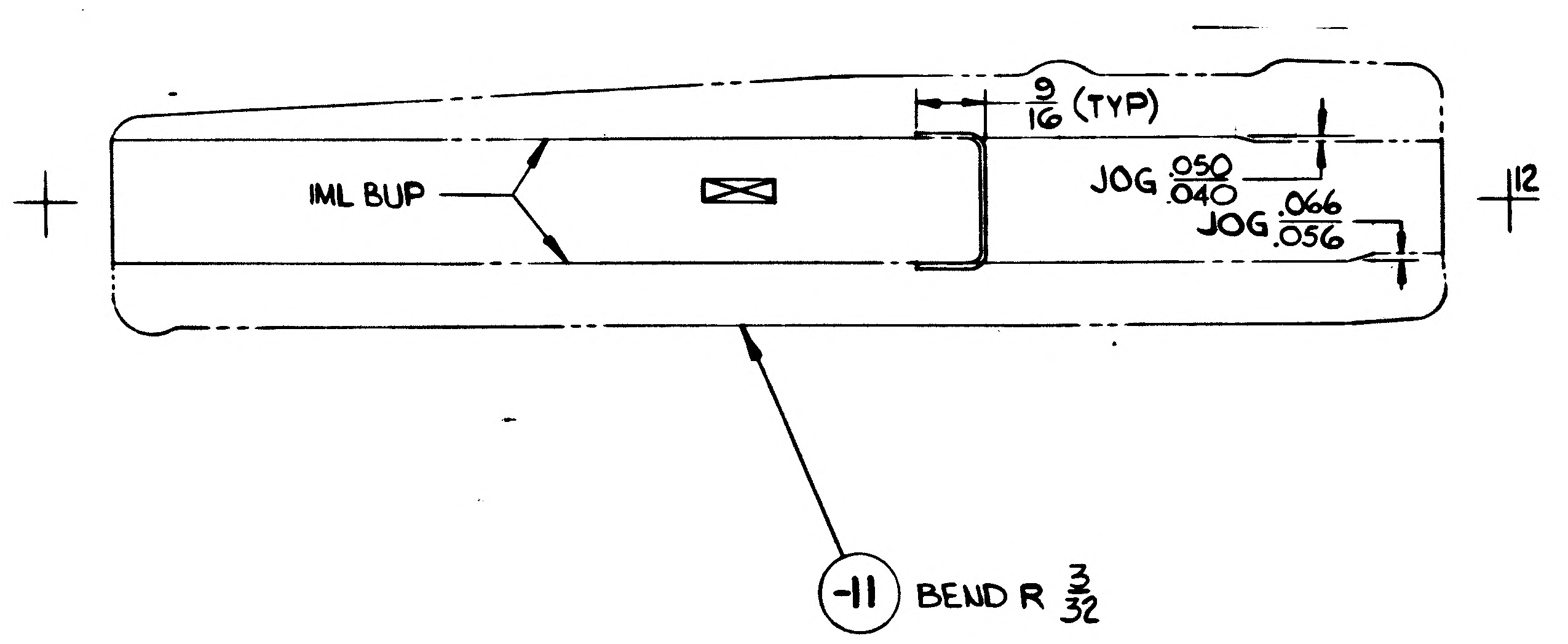
NAS 9-1100

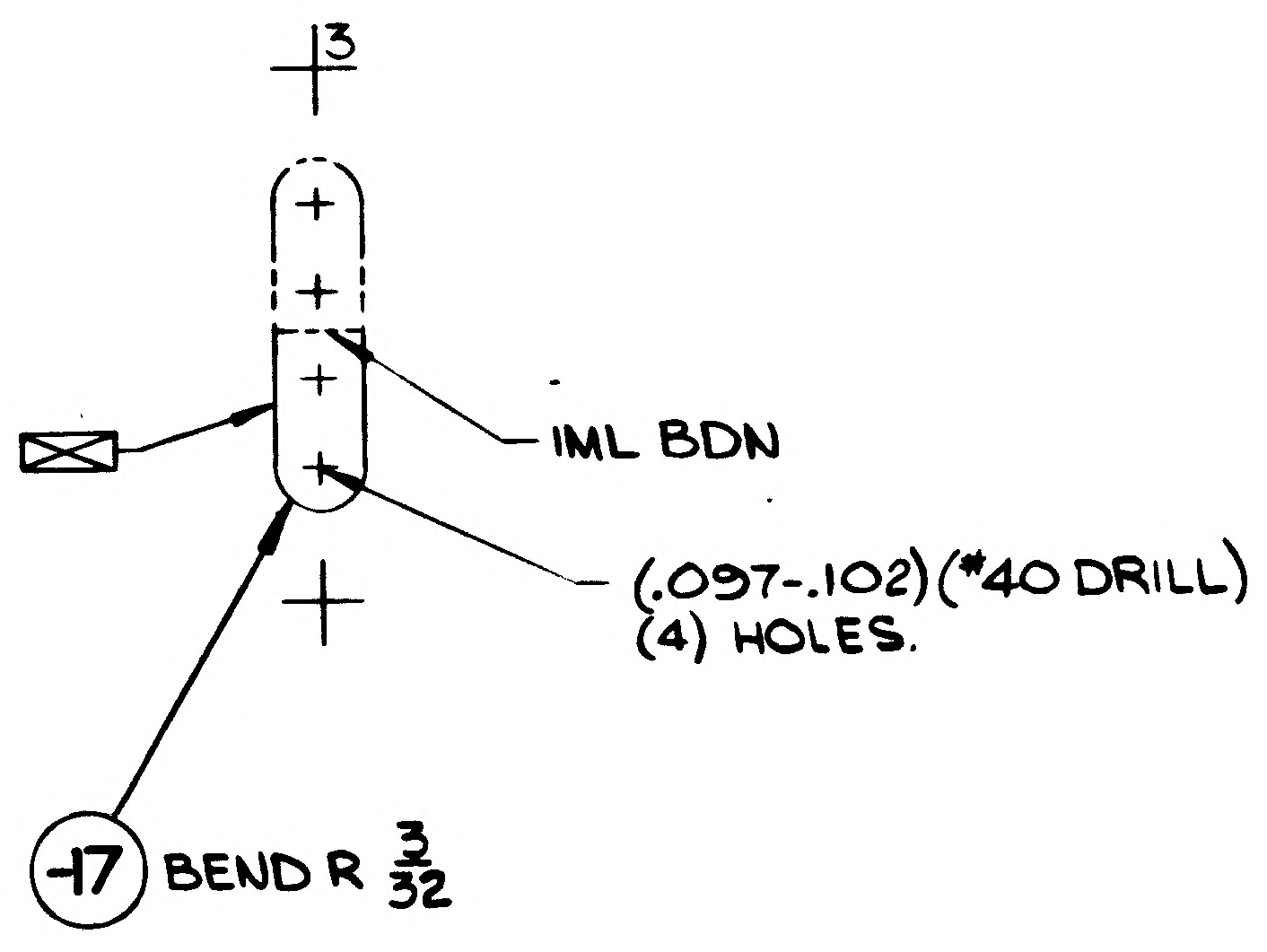
NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓


IML BDN
1/2
8
(.097-.102)(#40 DRILL)
(9) HOLES.
-15 BEND R 3/32


(.097-.102)(#40 DRILL)
(2) HOLES
5/8
IML BUP
IML BDN
JOG .050/.040
JOG .066/.056
IML BUP
9/16
13
-13 BEND R 3/32


9/16 (TYP)
IML BUP
JOG .050/.040
.066
JOG .056
12
-11 BEND R 3/32


3
IML BDN
(.097-.102)(#40 DRILL)
(4) HOLES.
-17 BEND R 3/32

NAS 9-1100

LDW280-18049 A

LDW280-18049

B1/13/14

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE E	CODE IDENT NO. 26512	LDW280-18049	A
LM				
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 218
CONTROL INFO NO. LDW280 - 93

ON THE FOLLOWING DRAWINGS ADD LEM-2(32) IN M/B
N/A & QUANTITIES SAME AS LEM-3

DRWG NO.	DASH NO.	TITLE	CHANGE NO.
LDW280M17685 ✓	-1 & -3	RADIOS BLOCK CA-3	A1
LDW280-18049 ✓	-11, -13 & -15	CHANNEL CONTROL ASSY	A1

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG								
REASON FOR EO ADDED MTG. PROVISION FOR CA-3 CONTROL ASSEM.				DESCRIPTION OF EO IN M/B FOR DASH * ADD LEM-2 REQUIREMENTS								GAEC C EO RELEASE X VE 8-27
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY		AAR	NM	Ac
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		NOT	REQ'D.	DATE	8/11/66	9-6	8-13-66	8-25-66 / 9-17-66
				REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	~~SUPPORT~~ WTS	RELIAB. GROUP / GROUP LEADER / STRESS GROUP / LIA'SON ENGRG	PROJ ENGRG / ~~GOVT~~
				PRIORITY	DRAWING TITLE				DRAWING NO.			EO NO.
LEM		LEM-2(32)		C	NOTED				LEO280			218

ISSUED BY G. KOURY/J. STRAKOCH SECTION VEH. DESIGN INT. GROUP NO. 335 PL 35

01
NAS 9-1100

ENG 22.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 544
CONTROL INFO NO. LDW280A6092

ADD LTA-3DR EFF. FOR THE FOLLOWING DRAWINGS AND DASH NUMBERS AS NOTED BELOW:

DRAWING NO.	DASH NO*	TITLE	CHANGE NO	QTY/MOD	N/A
LDW280-17692	-11	SEE DWG	A2	1	LDW280-23631
	-13			1	
-17453	-23		B2	1	-23632
	-25			1	
-17757	-17		B2	1	-23677
-17758	-11		B2	1	
	-13			1	
	-14			1	
-17759	-13		C2	2	
-17849	-11		B4	1	
-17875	-13		A2	2	-23678
	-15			1	
	-17			1	
-17796	-15		B3	1	-23685
-18050	-11		B1	1	-52795
	-13			1	
-23590	-3		B2	1	-54509
-23597	-5		B1	1	
-18049	-11		B1	1	-53794
	-13			1	
	-17			1	
M17425	-5		C5	2	-54516
	-7			1	
	-8			1	
M17419	-1		C3	8	
	-3			2	
	-5			6	
M17449	-5		B4	2	
	-7			6	
M17451	-3		B5	8	

LCD 19-1242 2/22

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: FAILURE OF LTA-3D IN STATIC TEST

DESCRIPTION OF EO: FOR * ADDED LTA-3DR EFF.

GAEC EO RELEASE: JK 4/4/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR (46)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK: NOT REQD SCRAP

APPROVED BY / DATE: 3/28/67 · 5 · VDI · SUPPORT · RELIAB. GROUP · GROUP LEADER 3/1/67 · STRESS GROUP W.H. 3/30/67 · LIAISON ENGRG · PROJ ENGRG 3-30-67 · 3/31/67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 544

ISSUED BY: STEA/STRAKOSCH X1156 SECTION: VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1332
CONTROL INFO NO. LDW2( )B 7422

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18038 ✓	B4 ✓	SEE DWG
↑ -18049 ✓	B2	↑
-18050	B3	
-18051	B5	
-18054	B2	
-18064	B3	
-18065	D2	
-18066	A3	
↓ -18067	A4	↓
LDW280-18068	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3587 PKG 53 PG. 8-9 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: HF 4/12

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY							
DATE	4/8/69			4-2-69	4/8/69	4/9/69	4/..69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1332

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1530
CONT. INFO NO. LDW280B 8106

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (~~40~~) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18051 ✓	SEE DWG	B6
18054 ✓		B5
18065 ✓		D3
18049 ✓		B3
LDW280-18050		B4
	SEE DWG	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 26 & 27 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 ([redacted] 23) REQM'TS

GAEC EO RELEASE: FR 8-8-69; JK 8/9/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY					M		Bauman	
DATE	7-29-69			7/29/69	8-2-69		8/2/69	8-9-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1530

ISSUED BY: G. HANSMANN X87222 (ML) 8-22-69
SECTION: VDI
GROUP NO: 335
PL: 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18049
EO NO. B4
CONTROL INFO NO. LDW280B9146

RESTRICT -13 & -15 TO LM-2(32) THRU LM-9(39) & LTA-3D/R(46) FOR N/A LDW280-53794.
WAS LM-2(32) THRU LM-14(44), LTA-3D/R(46). & LTA-11(23).

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG #62 (5)

REASON FOR EO: TO PROVIDE FOR FIVE BATTERY CONFIGURATION

DESCRIPTION OF EO: RESTRICTED EFFECTIVITY OF -13 & -15 BY REMOVING LM-10(40) THRU LM-14(44) & LTA-11(23)

GAEC EO RELEASE: VK 10/21/69

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44) & LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CCB~~
APPROVED BY	FDR							
DATE	10/15/69			10-15-69	10/16/69		10/16/69	10/21/69

PRIORITY C
DRAWING TITLE: CHANNEL ~ D/S ~ AFT R.H. BEAM PANEL ~ CONTROL ASSY. CA-3 SUPPORT
DRAWING NO. LDW280-18049
EO NO. B4

11-14-69
ISSUED BY R. BEHAN, G. BARNES, P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW28C 18050 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52795	LM-15 (45)	1 EA
		LM-14 (44)	
		LM-13 (43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5 (35)	
		LM-4 (34)	
		LM-3 (33)	
LM	LDW280-52795	LM-2 (32)	1 EA

PART NO. LDW280-18050-11,-13,-15&-17

GAEC SCH NO. 50-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

WORK PKG FUNCTION # 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00						
REV	A	A	A	A						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED —

LAST DASH NO. USED -17

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) MP-14A 4/17/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J. BACKOFEN 6/27/66	RELIABILITY	S
LAYOUT BY			
CHECKED BY	JRT		
GP LEADER	J. STRAKOSCH 6/27/66		
VEH DES INT	W. BISCHOFF 7/1/66		
STRUCTURES	F. BUNCE 7/8/66	PROJ ENGR	PLUNKETT 7/13/66
STRUCTURES	R. HILDERMAN 7/8/66	REL GROUP	C. BOTTI 7/14/66
WEIGHTS	D. ROBESCH 7/12/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE AMB He
LINE RUN SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18050 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77 1 12-65

SUPERSEDES LDW280-18050 "NO CHANGE" 7-14-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED "NO CHANGE" LAST REV "NO CHANGE" ADDED SH 1.00, 1.10, 2.00 & 3.00, LOFTED DWG WAS DIMENSIONED DWG	BAIS 3-23-67					
A	1	1.00, 1.10						LE0280-328	ADDED LM-7 THRU LM-15 EFF. FOR -11, -13, -15, -17	LM-7 THRU LM-15	NOT	REQD	C. BAIS 3-23-67	☒	
	2	1.10, 3.00						EO A2	ON -15 IN FLD, REVISED THE PERIMETER – ADDED #13 (2) HOLES; 1/4 (TYP); NOTE 1, CHECK MARK TO DEBURR COLUMN	LM-2 THRU LM-15	✓				
	3	1.10, 3.00							ADDED 3/4 DIM. FOR FLG WIDTH ON -11	LM-2 THRU LM-15	NOT	REQD	S.J.		

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
A		4/6/67	4/10/67			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18050	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18050-17	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.036 X 4 X 5	T6	88	5A
		-15	↕	HAT	↕	↕	↕	.040 X 3 X 4	↕	↕	8A
		-13	↕	ANGLE	↕	↕	↕	.050 X 2 X 15	↕	↕	6D
		LDW280-18050-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.045 X 3 X 15	T6	88	6F

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

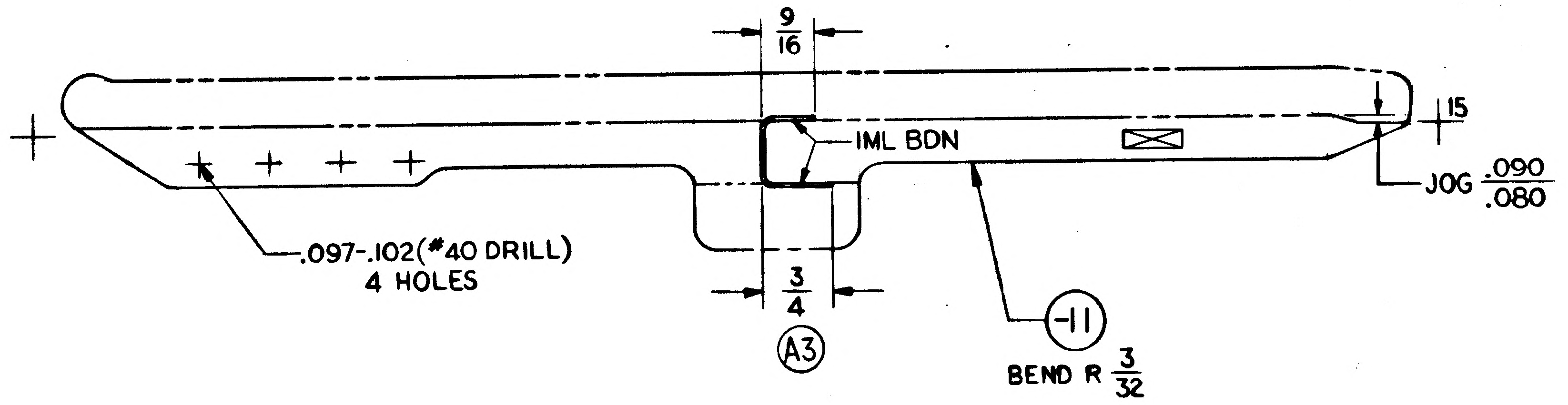
SIZE	CODE IDENT NO.		
B	26512	LDW280-18050	A

SCALE NONE SHEET 2.00

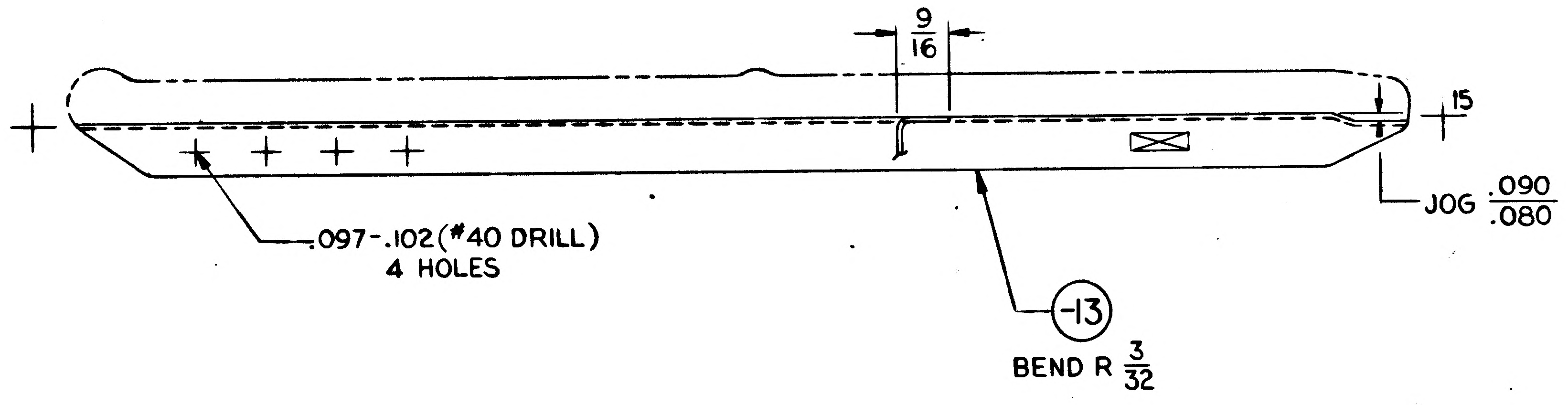
ENG 77.2 7-65

01

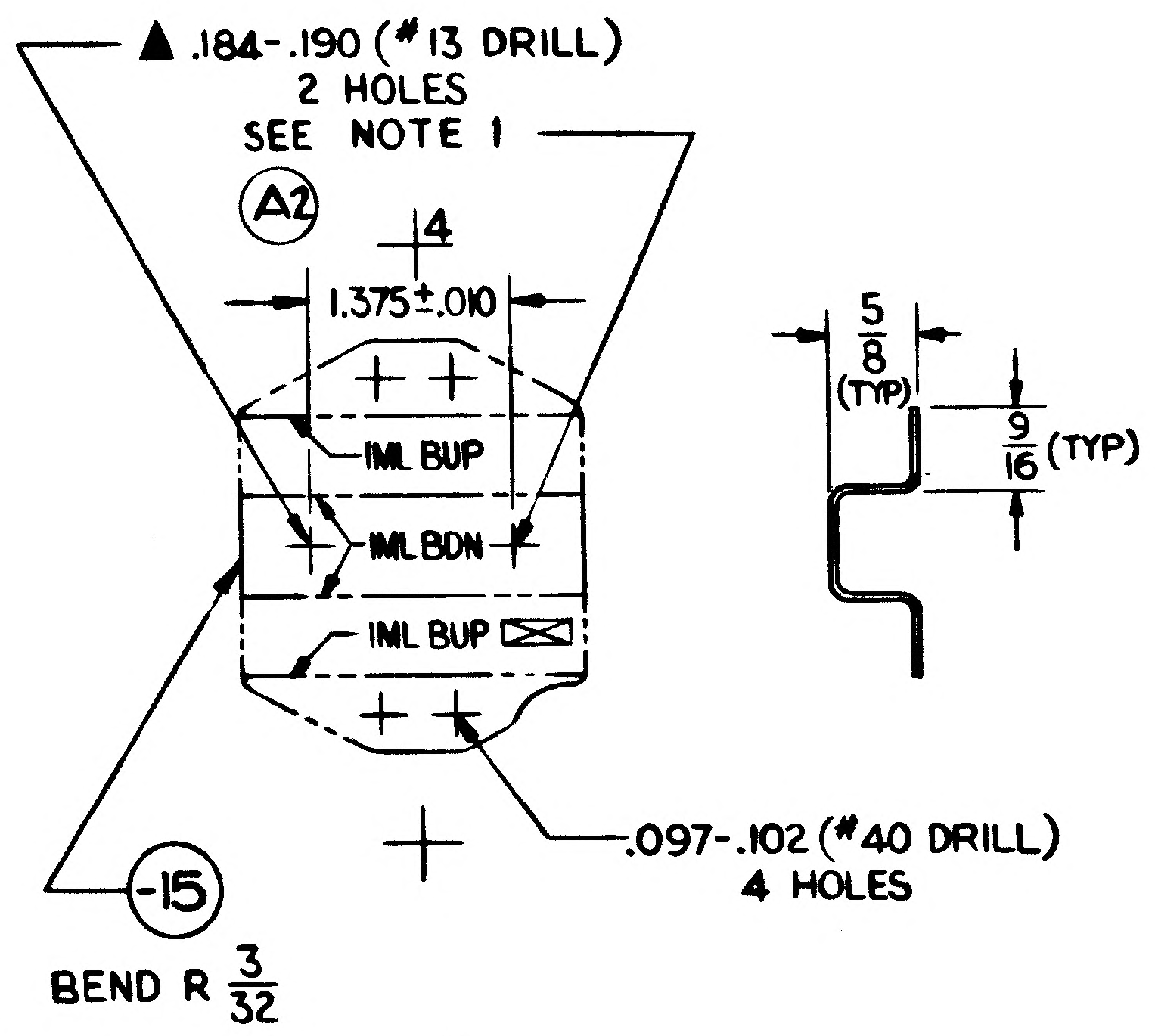
NAS 9-1100



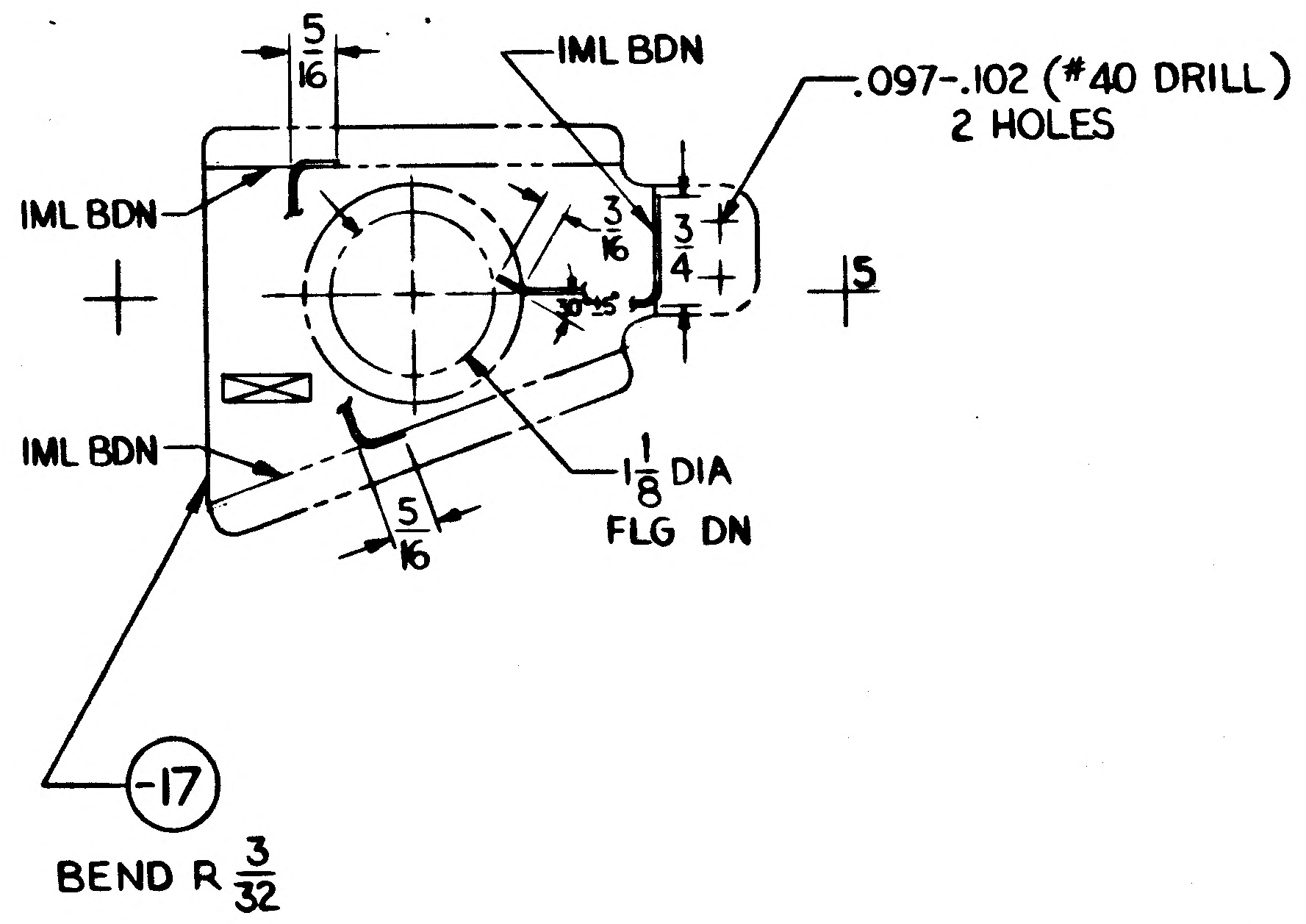
9/16
IML BDN
15
JOG .090/.080
.097-.102 (#40 DRILL)
4 HOLES
3/4
A3
-11
BEND R 3/32



9/16
15
JOG .090/.080
.097-.102 (#40 DRILL)
4 HOLES
-13
BEND R 3/32



▲ .184-.190 (#13 DRILL)
2 HOLES
SEE NOTE 1
A2
4
1.375±.010
IML BUP
IML BDN
IML BUP
.097-.102 (#40 DRILL)
4 HOLES
5/8 (TYP)
9/16 (TYP)
-15
BEND R 3/32



5/16
IML BDN
.097-.102 (#40 DRILL)
2 HOLES
IML BDN
3/16
3/4
5
IML BDN
1 1/8 DIA
FLG DN
5/16
-17
BEND R 3/32

NOTE:

1. FOR CORRESPONDING HOLE PATTERN OF HOLES MARKED ▲ SEE DRAWING LSC 360-624.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	✓
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18050	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEQ280
EO NO. 328
CONTROL INFO NO. LDW280A-1040

ENG 22.2 REV 3-63

*

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45) QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

	DRAWING NUMBER *	CHANGE NUMBER	TITLE
✓	LDW280 -17926	A1	SEE DRAWING
✓	-17927	B1	↑
✓	-17929	B1	
✓	-17932	A2	
✓	-17938	B2	
✓	-17941	B1	
	-17943	A3	
	-17948	A1	
	-17949	A1	
	-17950	A2	
	-17958	B1	
	-17959	A2	
	-17962	B1	
	-17966	B1	
	-17970	B1	
	-17973	A1	
	-17977	A1	
	-17981	A1	
	-17984	B1	
	-17985	A2	
	-17989	A2	
	-17992	B1	
	-17997	A1	
	-17998	C1	
	-17999	A6	
	-18035	A6	
	-18036	A1	
	-18038	A6	
	-18046	A4	
	-18050	A1	
	-18051	A1	
	-18062	A1	
	-18063	A1	
	-18065	B3	↓
	LDW280 -18066	A1	SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: 6E 1921

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D

APPROVED BY / DATE: 8/1/66 V.D.I.

STRESS GROUP: 10/7/66

PROJ ENGRG: 10/15/66

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEQ280

ISSUED BY M. GREY / J. STRAKOSCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280

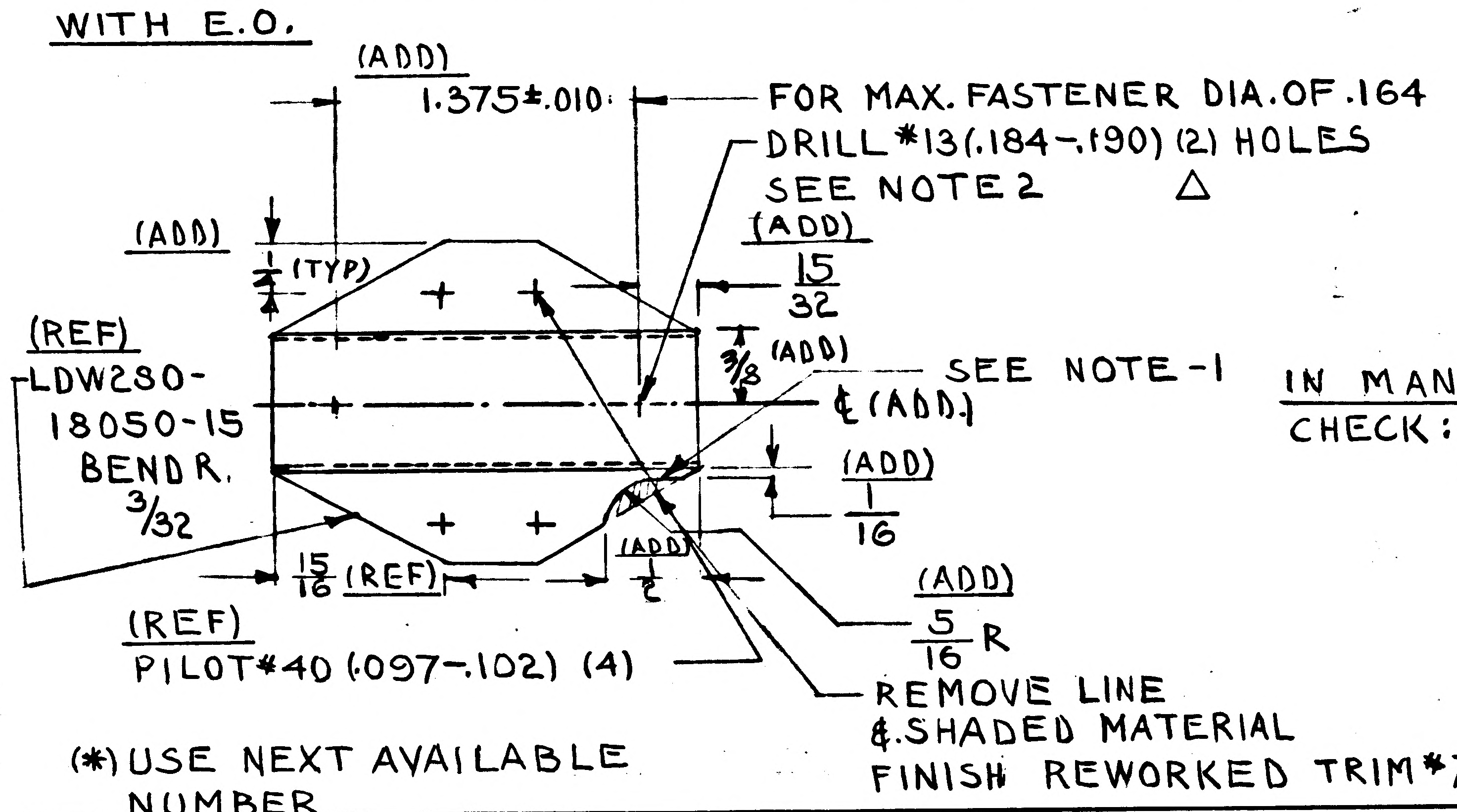
H.G.

ENG 32.1 REV 3-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-18050	EO NO. A2
CONTROL INFO NO. LM-2-3069	

IN F/D. REVISE THE PERIMETER OF 15 & ADD NOTES TO AGREE WITH E.O.


(ADD)
1.375±.010
FOR MAX. FASTENER DIA. OF .164
DRILL #13 (.184-.190) (2) HOLES
SEE NOTE 2 △
(ADD)
1/4 (TYP)
(ADD)
15/32
(REF)
LDW280-18050-15
BEND R. 3/32
3/8 (ADD)
SEE NOTE-1
℄ (ADD)
(ADD)
1/16
15/16 (REF)
(ADD)
1/2
(ADD)
5/16 R
(REF)
PILOT #40 (.097-.102) (4)
REMOVE LINE & SHADED MATERIAL
FINISH REWORKED TRIM #76

(*) USE NEXT AVAILABLE NUMBER

(ADD)
NOTE (*)
FOR CORRESPONDING HOLE PATTERN OF HOLES MARKED △ SEE DRAWING LSC 360-624

IN MANUFACTURING OPERATIONS CHECK: REMOVE ALL BURRS COLUMN

(NOTE)
WHERE ADDED CLEARANCE NOT REQUIRED THIS NOTCH MAY BE OMITTED

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: TO PROVIDE ADDED CLEARANCE FOR LDW280-17959-11 BRACKET

DESCRIPTION OF EO: ON -15 IN F/D. REVISED THE PERIMETER - ADDED #13 (2) HOLES; 1/4 (TYP.); NOTES * CHECK MARK TO DEBURR COLUMN

GAEC ✓ EO RELEASE: ER 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (321)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY	JRD				OJBE	Ctf	RMC	
				DATE	12/15				12/5/66	12/5/66	12-7-66	12-5-66
REVISE DWG	RECORD EO	REWORK	SCRAP	-1-	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C2	BRACKET D/S AMB He LINE RUN SPT	LDW280-18050	A2

ISSUED BY LIAISON - T.J. MARTIN - X3604 - 12-1-66   SECTION V.D.I.   GROUP NO. 335   PL 35

01   NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 544
CONTROL INFO NO. LDW280A6092

ADD LTA-3DR EFF. FOR THE FOLLOWING DRAWINGS AND DASH NUMBERS AS NOTED BELOW:

DRAWING NO.	DASH NO	TITLE	CHANGE NO	QTY/MOD	N/A
LDW280-17692	-11	SEE DWG	A2	1	LDW280-23631
	-13			1	
-17453	-23		B2	1	-23632
	-25			1	
-17757	-17		B2	1	-23677
-17758	-11		B2	1	
	-13			1	
	-14			1	
-17759	-13		C2	2	
-17849	-11		B4	1	
-17875	-13		A2	2	-23678
	-15			1	
	-17			1	
-17796	-15		B3	1	-23685
-18050	-11		B1	1	-52795
	-13			1	
-23590	-3		B2	1	-54509
-23597	-5		B1	1	
-18049	-11		B1	1	-53794
	-13			1	
	-17			1	
M 17425	-5			2	-54516
	-7		C5	1	
	-8			1	
M17419	-1			8	
	-3		C3	2	
	-5			6	
M17449	-5		B4	2	
	-7			6	
M17451	-3		B5	8	

LCO 19-1242 2/22

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: FAILURE OF LTA-3D IN STATIC TEST

DESCRIPTION OF EO: FOR ✱ ADDED LTA-3DR EFF.

GAEC EO RELEASE: JK 4/4/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR (46)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

APPROVED BY: DATE 3/28/67 5 VDI

SUPPORT: RELIAB. GROUP: GROUP LEADER: 4/1/67 STRESS GROUP: W/H 3/31/67 LIAISON ENGRG: PROJ ENGRG: 3-30-67 ~~GOVT~~ 3/31/67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 544

ISSUED BY: STEA/STRAKOSCH X1156 SECTION: VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1332
CONTROL INFO NO. LDW280B 7422

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO. ✓	CHANGE NO	DWG NOMENCLATURE
LDW280-18038 ✓	B4 ✓	SEE DWG
-18049 ✓	B2	
-18050 ✓	B3	
-18051	B5	
-18054	B2	
-18064	B3	
-18065	D2	
-18066	A3	
-18067	A4	
LDW280-18068	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG. 8-9 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: HF 4/12/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SOIF~~
APPROVED BY	JBB			RST	WH		JaP	
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/4/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1332

052869 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1530
CONTROL INFO NO. LDW 280B 8106

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
LDW280-18051 ✓	SEE DWG	B6	
18054 ✓		B5	
x 18065 ✓		D3	
18049 ✓		B3	
LDW280-18050 ✓		B4	
	SEE DWG		

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 26 & 27 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 ([redacted] 23) REQMTS

GAEC EO RELEASE: 8-8-69; 8/9/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK / SCRAP

APPROVED BY					M		Bauman
DATE	7-29-69			7/29/69	8-2-69		8/2/69 8-4-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG ~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1530

8-22-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18051 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52795	LM-15(45)	1 EA
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11 (41)	1
		LM-10(40)	1
		LM-9 (39)	1
		LM-8(38)	1
		LM-7 (37)	1
		LM-6(36)	1
		LM-5 (35)	1
		LM-4 (34)	1
		LM-3 (33)	1
LM	LDW280-52795	LM-2 (32)	1 EA
PART NO. LDW280-18051-11 & -13		GAEC SCH NO. 50-2	

WORK PKG FUNCTION NO. 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00		3.00			
REV	A	A				A			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A
LAST DASH NO. USED	-13	PRIM NO. 207 JK(001) mp-5H 6/3/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/64 ±.010 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY			
LAYOUT BY	JOHN LANG 6-29-66		
CHECKED BY			
GRP LEADER	J STRAKOSCH 6-30-66		
VEH. DES. INT.	W. BISCHOFF 7-5-66		
STRUCTURES	F BUNCE 7-8-66	PROJ ENGR	PLUNKETT 7-13-66
STRUCTURES	HILDERMAN 7-8-66	REL GROUP	BOTTI 7-14-66
WEIGHT	D. ROBESCH 7-12-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE ~ AMBIENT
HELIUM DISCONNECT SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18051	A
SCALE	NONE	SHEET 1.00 OF 4	

Ⓐ

ENG 77.1 12-65

SUPERSEDES LDW280-18051 LAST REV N.C 7-14-66

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REVISION NO CHANGE. LOFTED DWG (WAS) DIMENSIONED DWG. ADDED SHEET 1.10 P. CARSTENSEN 5-15-67						
A	1	1.00 & 1.10						LEO280-328	FOR -11 & -13 ADDED LM-7 THRU LM-15 EFFECTIVITY	LM-7 THRU LM-15	NOT	REQ'D	CARSTENSEN 5-15-67	☒	☒
	2	3.00						EOA2	FOR-11 ADDED 3/8 R, 9/32 R(2), 7/32, 30°, 13/16 & 25/32 DIMENSIONS	LM-2 THRU LM-15	✓				

FOR CONTINUATION OF REVISIONS SEE SHEET ______

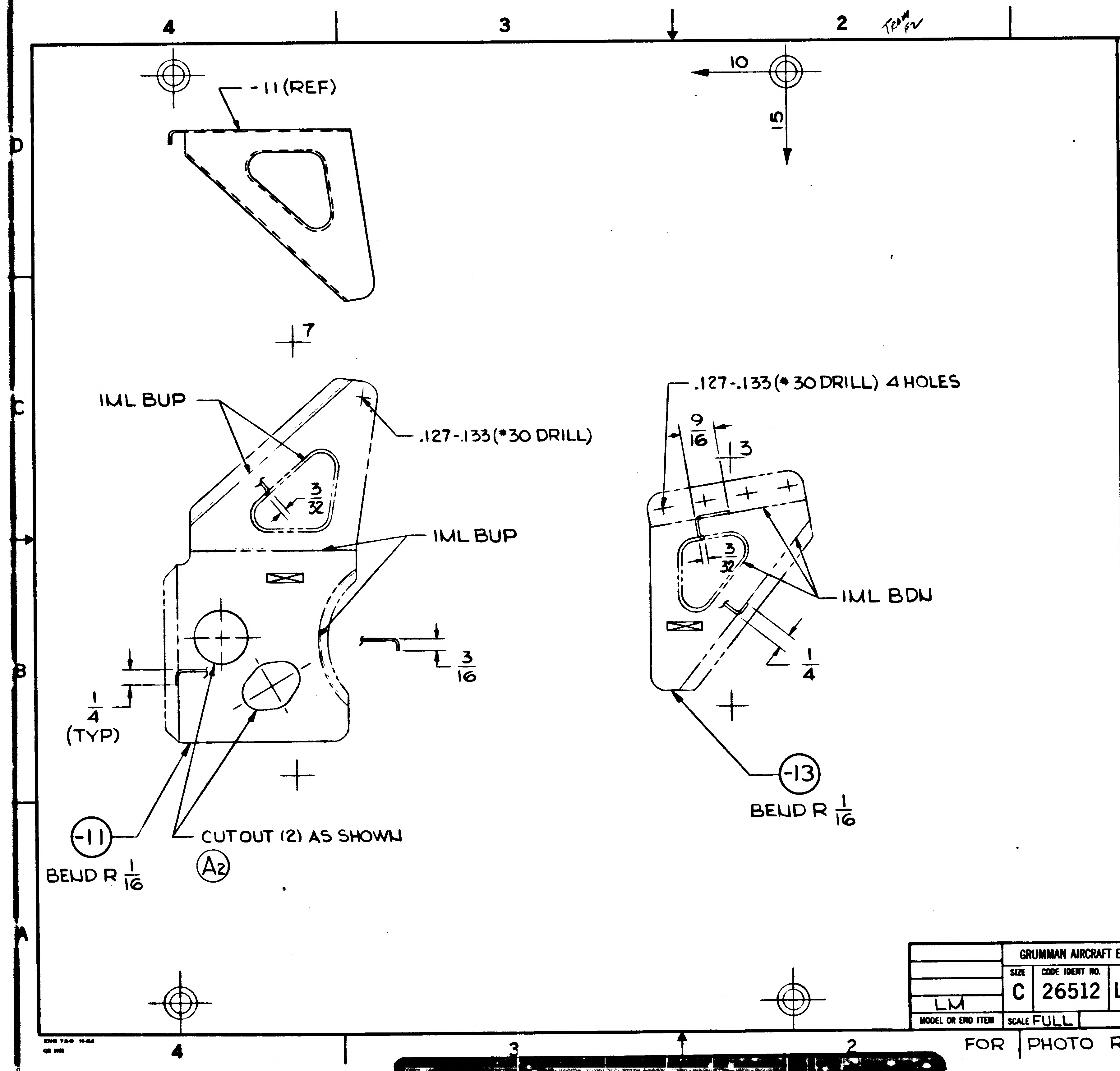
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18051	A
SCALE NONE		SHEET 1.10	

ENG 77.3 5-65

01

NAS 9-1100



MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL ARKINGS IN REGION ~~USE BOTH SI NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18051	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

LDW280-18051 A

LDW280-18051 A

01

NAS 9-1100

LDW280-18051

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
	LDW280-52795	LEM-6 (36)	1 EA
	LDW280-52795	LEM-5 (35)	1 EA
	LDW280-52795	LEM-4 (34)	1 EA
	LDW280-52795	LEM-3 (33)	1 EA
LEM	LDW280-52795	LEM-2 (32)	1 EA
PART NO. LDW280-18051-11-13		GAEC SCH NO. 50-1	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-13	PRIM NO.	VE(001)	
		207	MP	7-9-6X

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/64 ±.010 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY			
LAYOUT BY	JOHN LANG 6-29-66		
CHECKED BY			
GP LEADER			
STRUCTURES	WJH BP 7/8/66		
STRUCTURES	Hilderman 7/8	PROJ ENGR	Plunkett 13 July 66
WEIGHTS	D Robesch 7/12	REL GROUP	Batt 7-14-66
VDI	7/15		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET - D.S. - AMBIENT
HELIUM DISCONNECT SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18051
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18051-13	E	BRACKET	AL AL SH	QQ-A-250/4	2024-0	.040 x 3½ x 4½	T42	76	
		LDW280-18051-11	E	BRACKET	AL AL SH	QQ-A-250/4	2024-0	.040 x 4½ x 6½	T42	76	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						76	ALODINE	LSP-14-9030
						T42	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18051

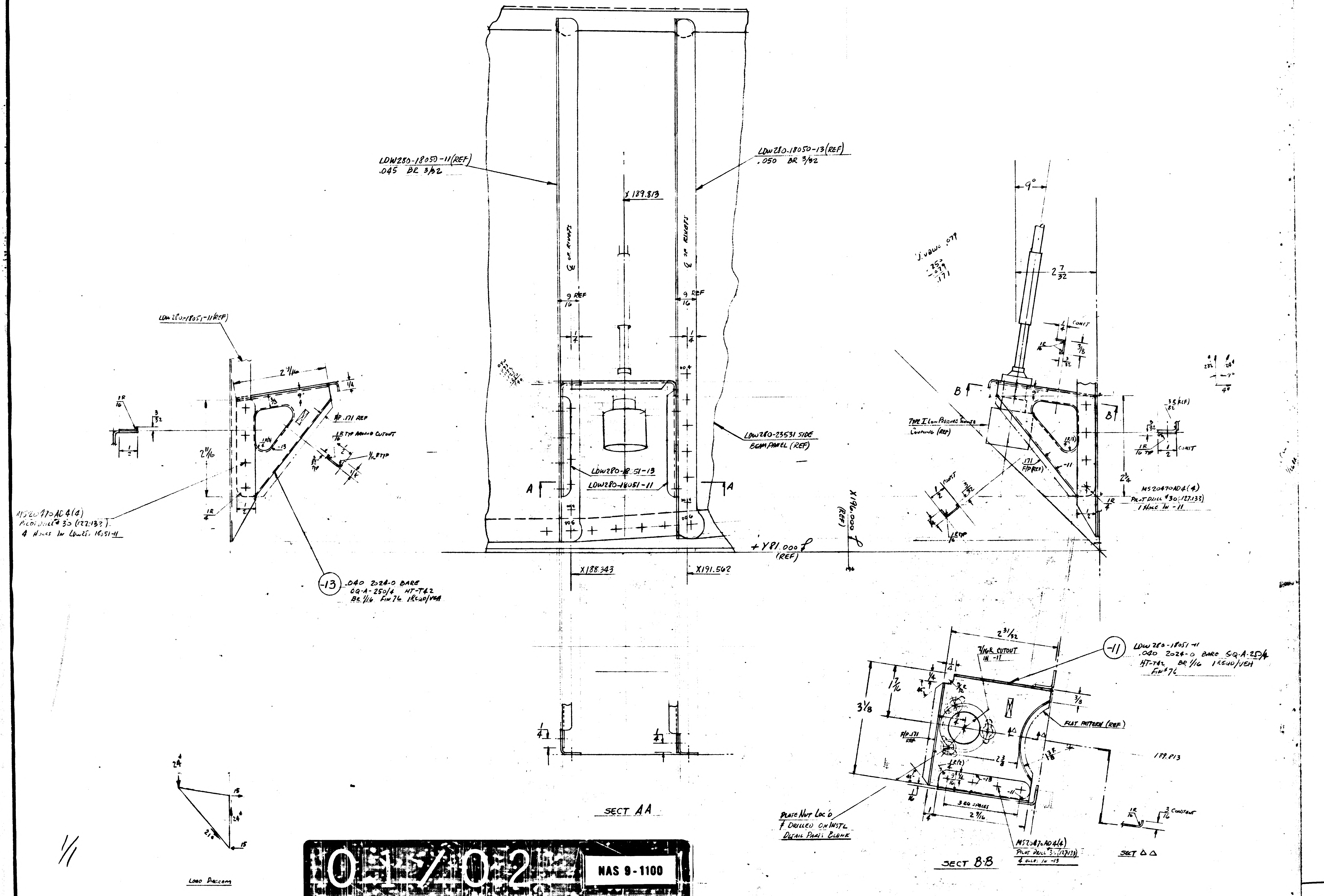
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


LDW280-18050-11(REF)
.045 BR 3/32
LDW280-18050-13(REF)
.050 BR 3/32
X 189.813
℄ OF RIVETS
9/16 REF
1/4
LDW280-23531 SIDE BEAM PANEL (REF)
LDW280-18051-13
LDW280-18051-11
A
X188.343
X191.562
+Y81.000 ℄ (REF)
X196.000 ℄ (REF)
LDW280-18051-11(REF)
2 9/16
1/4
9°
F/P .171 REF
1/16 R TYP AROUND CUTOUT
1/16 R TYP
3/32 TYP
1/16 R
3/32
1/2
2 11/16
1/4 R
MS20470AD4(4)
PILOT DRILL #30 (127.133)
4 HOLES IN LDW280-18051-11
-13
.040 2024-0 BARE
QQ-A-250/4 HT-T42
BR 1/16 FIN 76 1 REQD/VEH
9°
2 7/32
1/4 CONST
3/8
3/32
B
TYPE I LOW PRESSURE SENSE COUPLING (REF)
.171 F/P (REF)
-11
1/4 R(3)
2 3/4
MS20470AD4(4)
PILOT DRILL #30 (127.133)
1 HOLE IN -11
3/32 R (REF)
1/16 R TYP
1/2 CONST
1/16 R TYP
SECT AA
-11
LDW280-18051-11
.040 2024-0 BARE QQ-A-250/4
HT-T42 BR 1/16 1 REQD/VEH
FIN #76
2 31/32
7/16 R CUTOUT IN -11
3 1/8
1 7/16
3/8
3/4
F/P .171 REF
FLAT PATTERN (REF)
2 3/8
1 3/8 R
189.813
1/4 R(2)
3 EQ SPACES
2 9/16
45°
PLATE NUT LOC'D
# DRILLED ON INSTL
DETAIL PARTS BLANK
MS20470AD4(4)
PILOT DRILL #30 (127.133)
4 HOLES IN -13
SECT B-B
1/16 R
3/16 CONSTANT
SECT △△

270-817-21
15 LONG
35 ... PRESSURE

01/02 NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

Rubber Stamp PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	✓
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

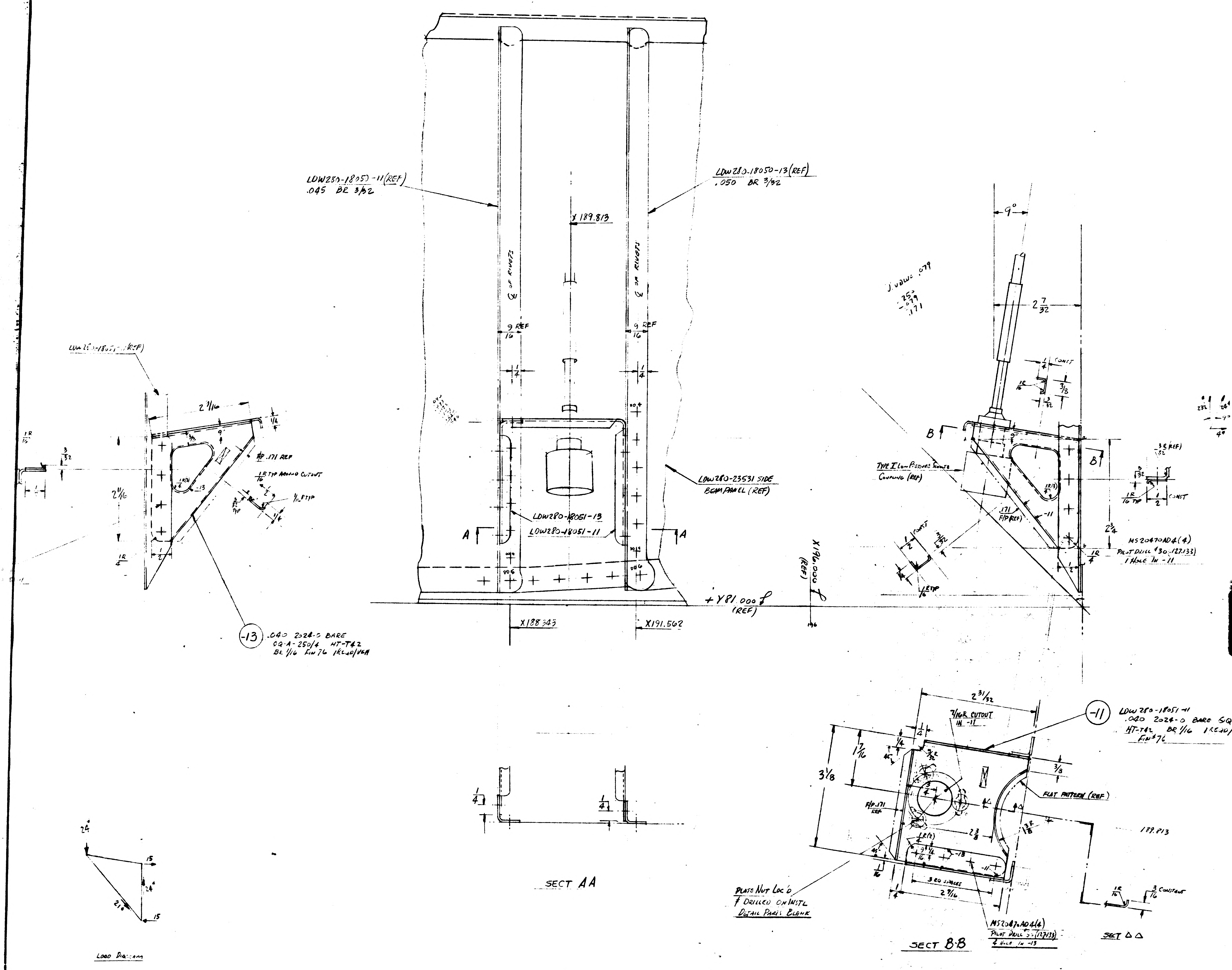
DWG SIZE 28 X
PRINTING INFO ONLY
FULL SIZE SHEET AREA (30 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.
PRINT TRIM LINE

LDW280-18051

LAYOUT RELEASE
TO BE REDRAWN ON PRODUCTION FORMAT.
ALL INFO NOT REQ'D FOR MFG OF LDW280-18051 IS FOR REF ONLY

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE H	CODE IDENT NO. 26512	LDW280-18051
LEM			
MODEL OR END ITEM	SCALE FULL		SHEET

LDW280-18051


LDW280-18050-11(REF)
.045 BR 3/32
LDW280-18050-13(REF)
.050 BR 3/32
X 189.813
℄ OF RIVETS
9/16 REF
1/4
LDW280-23531 SIDE
BEAM PANEL (REF)
LDW280-18051-13
LDW280-18051-11
A
A
X188.343
X191.562
+Y81.000 ℄
(REF)
X196.000 ℄
(REF)
LDW280-18051-(REF)
2 3/16
1/4
9°
FP .171 REF
1R/16 TYP AROUND CUTOUT
1/16 R TYP
3/32 TYP
2 11/16
1R/4
1/2
-13
.040 2024-0 BARE
QQ-A-250/4 HT-T42
BR 1/16 FIN 76 1REQD/VEH
9°
2 7/32
1/4 CONST
3/8
3/32
B
B
TYPE I LOW PRESSURE SWAGE
COUPLING (REF)
1R(3)/4
.171
F/P(REF)
-11
2 3/4
1R/4
MS20470AD4(4)
PILOT DRILL #30 (.127/.133)
1 HOLE IN -11
3R/32 (REF)
1R/16 TYP
1/2 CONST
1R/16 TYP
SECT AA
2 31/32
7/16R CUTOUT
IN -11
-11
LDW280-18051-11
.040 2024-0 BARE QQ-A-250/4
HT-T42 BR 1/16 1REQD/VEH
FIN #76
3 1/8
1 7/16
3/8
FLAT PATTERN (REF)
F/P .171
REF
2 3/8
1R(2)/4
3 EQ SPACES
2 9/16
189.813
PLATE NUT LOC'D
& DRILLED ON INSTL
DETAIL PARTS BLANK
MS20470AD4(4)
PILOT DRILL #30 (.127/.133)
4 HOLE IN -13
SECT B-B
3/16 CONSTANT
SECT ΔΔ
LOAD DIAGRAM

02/02

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
Rubber Stamp PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	✓
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	✓
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 28 X

PRINTING INFO ONLY

FULL SIZE SHEET AREA (30 X) = SQ. FT.

1/2-SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

LDW280-18051

LDW280-18051

LAYOUT RELEASE

TO BE REDRAWN ON PRODUCTION FORMAT.

ALL INFO NOT REQ'D FOR MFG OF LDW280-18051 IS FOR REF ONLY

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE H	CODE IDENT NO. 26512	LDW280-18051
LEM			
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

ENG 32.2 REV 3-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEQ280
EO NO. 328
CONTROL INFO NO. LDW280A-1040

* TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER *	CHANGE NUMBER	TITLE
LDW280 -17926	A1	SEE DRAWING
-17927	B1	↑
-17929	B1	
-17932	A2	
-17938	B2	
-17941	B1	
-17943	A3	
-17948	A1	
-17949	A1	
-17950	A2	
-17958	B1	
-17959	A2	
-17962	B1	
-17966	B1	
-17970	B1	
-17973	A1	
-17977	A1	
-17981	A1	
-17984	B1	
-17985	A2	
-17989	A2	
-17992	B1	
-17997	A1	
-17998	C1	
-17999	A6	
-18035	A6	
-18036	A1	
-18038	A6	
-18046	A4	
-18050	A1	
-18051	A1	
-18062	A1	
-18063	A1	
-18065	B3	↓
LDW280 -18066	A1	SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: ℞ 1921

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO. / SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38) LEM-9(39)
LEM		LEM-10(40) LEM-11(41) LEM-12(42)
LEM		LEM-13(43) LEM-14(44) LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY / DATE: V.D.I. 10/7/66 — SUPPORT — RELIAB. GROUP — GROUP LEADER — STRESS GROUP 10/7/66 — LIAISON ENGRG — PROJ ENGRG 10/15/66

PRIORITY: C

DRAWING TITLE: NOTER

DRAWING NO.: LEQ280

ISSUED BY M. GREY / J. STRAKOSCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280

01
NAS 9-1100

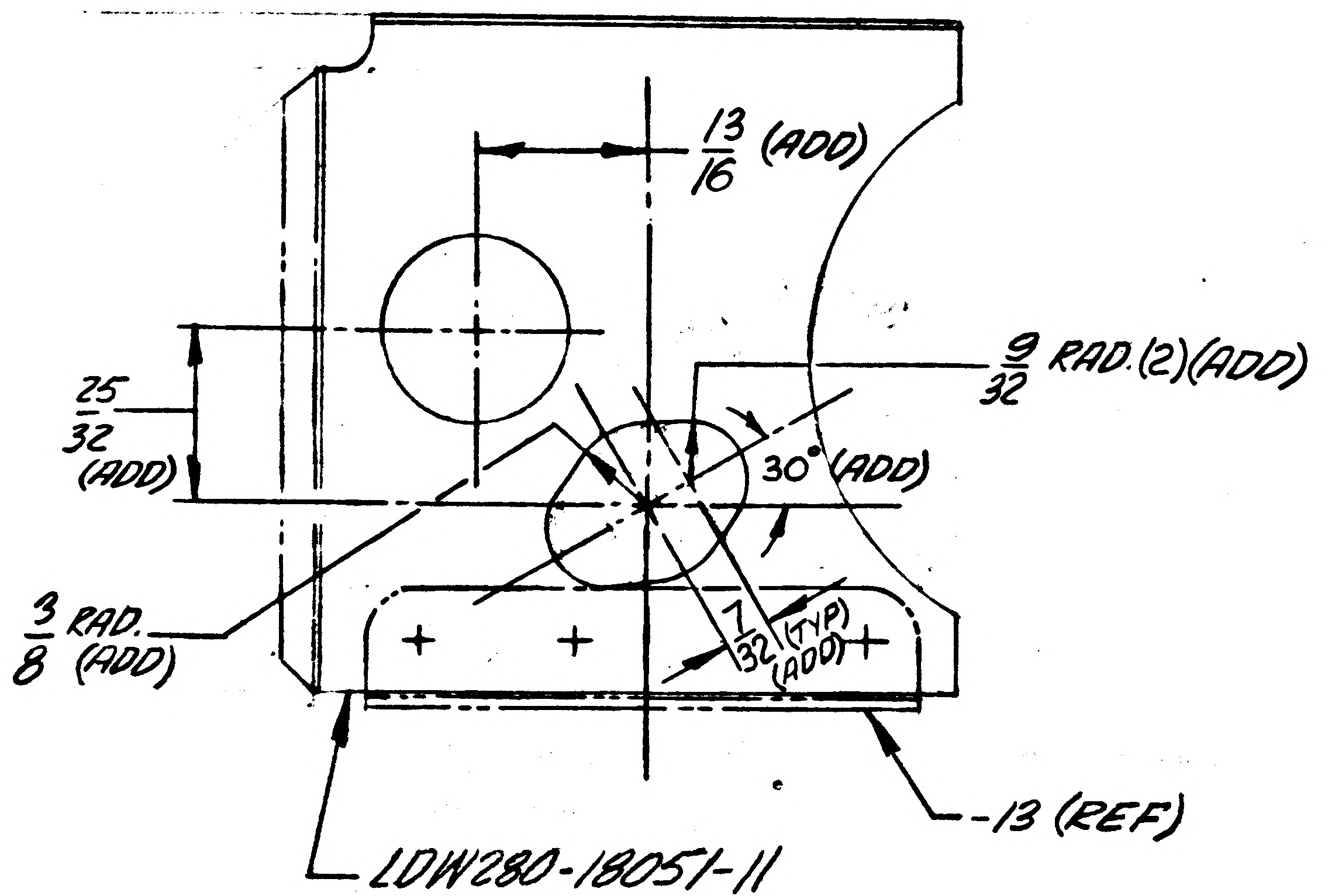
wH

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18051 | EO NO. A2
CONTROL INFO NO. LM-2-2937

ADD CUTOUT TO -11 AS SHOWN BELOW:



F.N #76
AFTER REWORK

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	2

REASON FOR EO: TO PROVIDE ACCESS FOR ADJACENT INTERLOCK CONNECTION

DESCRIPTION OF EO: FOR -11, ADDED 3/8 R., 9/32 R.(2), 7/32, 30°, 13/16 & 25/32 DIM.

GAEC EO RELEASE: FR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
LM		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY								
DATE	1/15				12/28/66	10/28/66	10-?-66	10-28-66
1	VD1	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET - D.S. - AMBIENT HELIUM DISCONNECT SUPPORT	LDW280-18051	A2

ISSUED BY LIAISON / E. NEFF X3604 SECTION V.D.I. GROUP NO. 335 EMF PL 35

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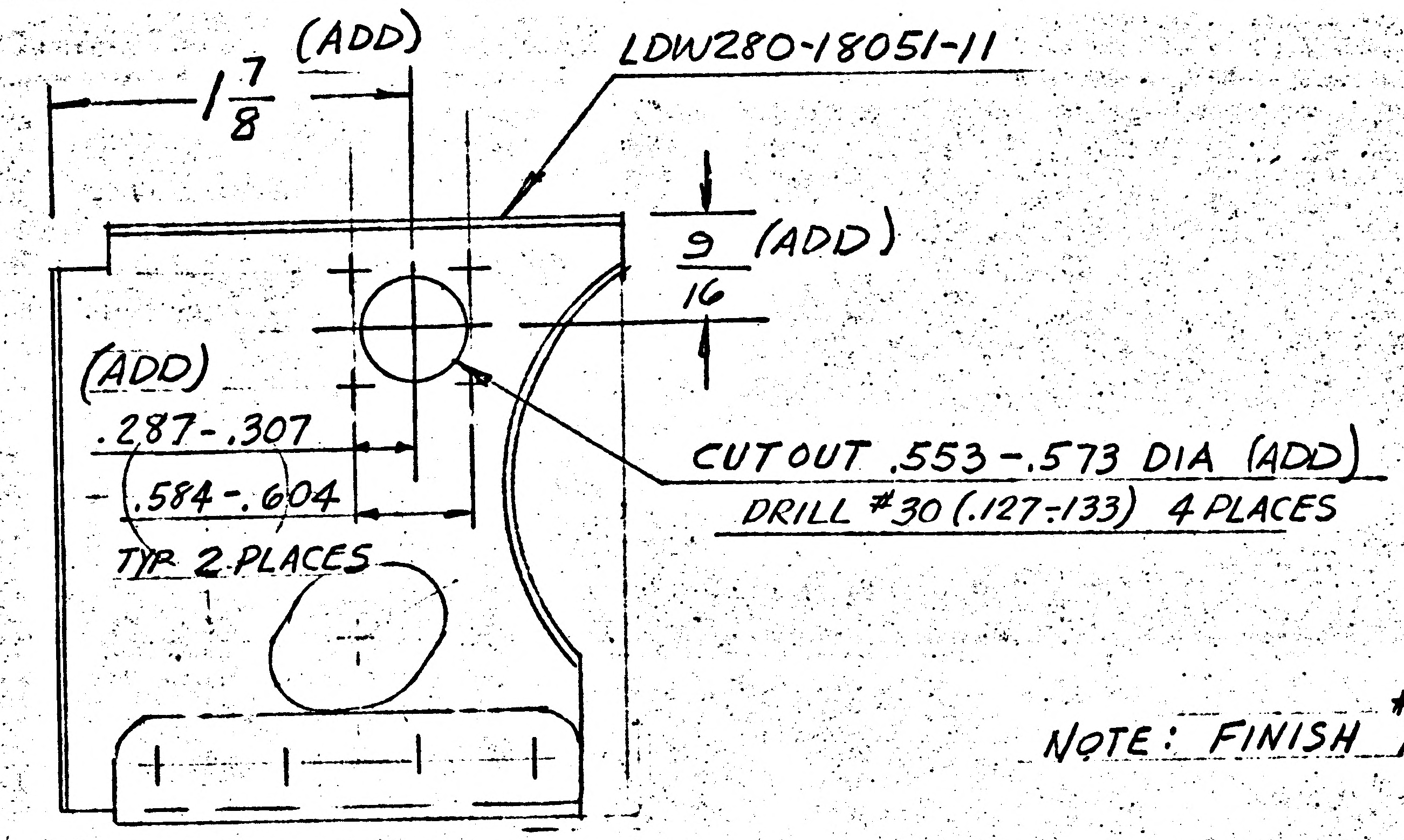
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18051	EO NO. B1
CONTROL INFO NO. LDW280A8334	



(ADD)
1 7/8
LDW280-18051-11
9/16 (ADD)
(ADD)
.287-.307
.584-.604
TYP 2 PLACES
CUTOUT .553-.573 DIA (ADD)
DRILL #30 (.127-.133) 4 PLACES

NOTE: FINISH #76 AFTER REWORK

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD-1299 OK

REASON FOR EO: TO PROVIDE FOR GSE AMBIENT He TEMP XDUCER

DESCRIPTION OF EO: FOR -11. ADDED .553-.573 DIA HOLE, DRILL #30 (.127-.133) 4 PLACES & LOCATING DIM

Ⓡ GAEC EO RELEASE: JK 8/5/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-2 (32)		
LM	THRU		
LM	LM-15 (45)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓		✓		DATE	8/1/67			8/1/67	8/4/67		8/4/67	8-5-67
				8-1-67	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET-D.S.-AMBIENT HELIUM DISCONNECT SUPPORT	LDW280-18051	B1

8/7/67 ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION V.D.1 GROUP NO. 335 PL 25

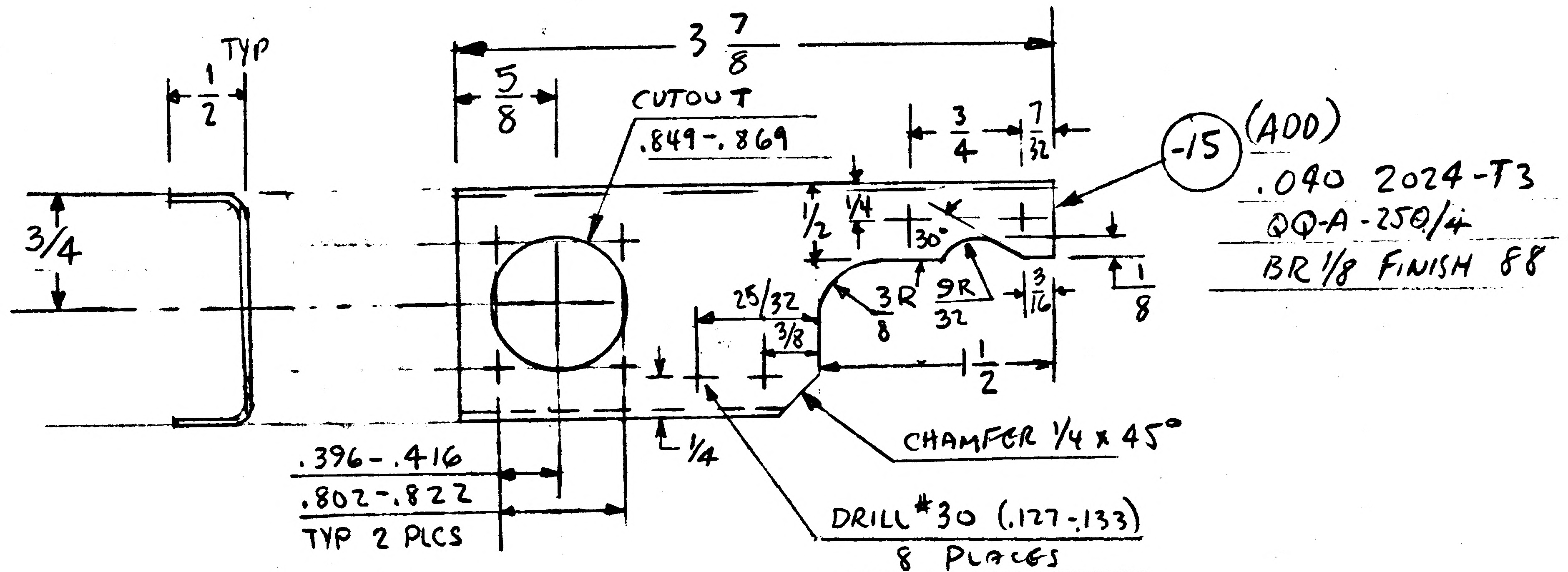
RELEASED BY LIAISON

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18051 | EO NO. B2
CONTROL INFO NO. LM-5-16169

IN F/O & B/M, ADD -15, N/A LDW 280-52795, 1 REQD/MOD


TYP
1/2
3/4
3 7/8
5/8
CUTOUT
.849-.869
3/4
7/32
-15 (ADD)
.040 2024-T3
QQ-A-250/4
BR 1/8 FINISH 88
1/4
1/2
30°
25/32
3R/8
9R/32
3/16
1/8
3/8
1/2
1/4
CHAMFER 1/4 x 45°
.396-.416
.802-.822
TYP 2 PLCS
DRILL #30 (.127-.133)
8 PLACES

DETAIL SPEC REQ		CL II ENGRG CHG	/	CL I ENGRG CHG	5

REASON FOR EO: TO PROVIDE FOR GSE AMBIENT He TEMP XDUCER

DESCRIPTION OF EO: IN F/O & B/M ADDED -15 N/A LDW280-52795 QTY 1 REQD/MOD

GAEC EO RELEASE: JK 32 05 025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	LM-15 (45)		
	THRU		
LM	LM 2 (32)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		NOT REQD		APPROVED BY				—	NM JH		
				DATE	9/18/67			—	8/31/67	9-1-67	9/18/67	9-1-67
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: BRACKET D/S AMBIENT HELIUM DISCONNECT SUPPORT
DRAWING NO.: LDW280-18051
EO NO.: B2

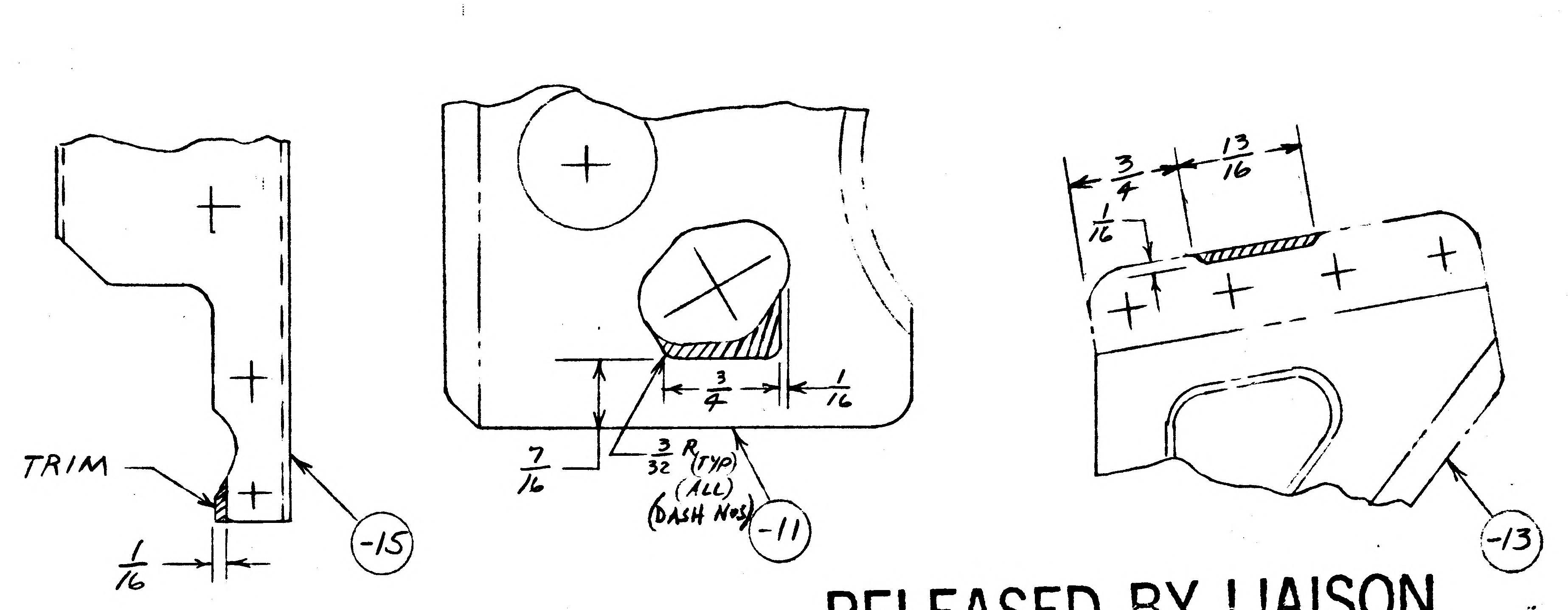
ISSUED BY JL J LANG X1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
ENG 32.1 REV 3-65

DWG. NO. LDW280-18051 | EO NO. B3
CONTROL INFO NO. LM-5-17610

IN FLD/DWG TRIM -15 -11 & -13 AS SHOWN IN SHADED AREAS:



RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		(5)

REASON FOR EO: TRIM NECESSARY TO PROVIDE CLEARANCES FOR ELECT. CONN. TO PYRO.

DESCRIPTION OF EO: IN FLD/DWG TRIMMED -11, -13, & -15

GAEC EO RELEASE: K

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		-11 -13 -15	

			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY		JHS			—	JB	CH	JP	
DATE	12-14-67	12/21/67				12-19-67	12-15-67	12/21/67	12/19/67
		VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET SUPPORT D/S AMBIENT HELIUM DISCONNECT	LDW280-18051	B3

ISSUED BY LIAISON P. HUSTED 86755 SECTION V D I GROUP NO. 335 PL 25

0 1

NAS 9-1100

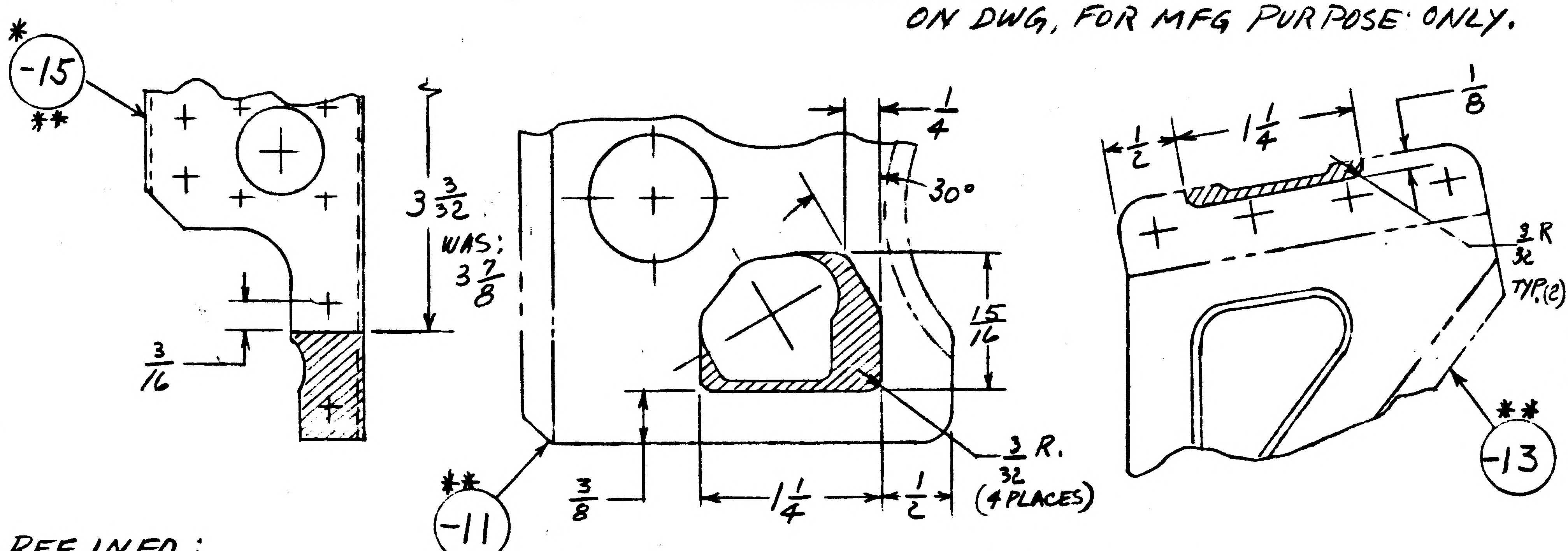
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18051 | EO NO. B4
CONTROL INFO NO. LM-5-21698

IN FLD/DWG TRIM -11, -13, & -15 AS SHOWN IN SHADED AREAS:

NOTE: DO NOT INCLUDE DIMENSIONS ON DWG, FOR MFG PURPOSE ONLY.



REF INFO:
* SEE EO B2 FOR CREATION OF -15
** SEE EO B3 FOR CHANGES TO -11 -13 & -15

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | ✓ CL I ENGRG CHG ☐ | (5)

REASON FOR EO: TRIM NECESSARY TO PROVIDE CLEARANCE FOR ELECT. CONN. TO PYRO.

DESCRIPTION OF EO: IN FLD/DWG. TRIMMED -11, -13, & -15

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-7 (37)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY	JAB				RH			Both
				DATE	3/31/69			3/3/69	3-28-69	3-28-69	4/2/69	4-2-69
REVISE DWG	RECORD EO	REWORK	SCRAP	3-27-69	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: BRACKET SUPPORT P/S - AMBIENT HELIUM DISCONNECT
DRAWING NO.: LDW280-18051
EO NO.: B4

ISSUED BY LIAIS[illegible], P. HUSTED, 86755 SECTION V D I GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1332
CONTROL INFO NO. LDW280B 7422

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18038 ✓	B4 ✓	SEE DWG
-18049 ✓	B2	↑
-18050 ✓	B3	
-18051 ✓	B5	
-18054	B2	
-18064	B3	
-18065	D2	
-18066	A3	
-18067	A4	↓
LDW280-18068	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG. 8-9 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: HF 4/12

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	[illegible]			4-2-69	4/8/69		4/9/69	4/2/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1332

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1530
CONTROL INFO NO. LDW 280B 8106

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18051 ✓	SEE DWG	B6
18054		B5
18065		D3
18049		B3
LDW280-18050		B4
	SEE DWG	

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 3890 PKG 99 PG 26 & 27 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23 [redacted]) REQMTS

GAEC EO RELEASE: FR 8-8-69; JK 8/9/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	PST				M			Bauman
DATE	7-29-69			7/29/69	8-2-69		8/2/69	8-4-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1530

8-22-69
ISSUED BY G. HANSMANN X87222 SECTION VDI GROUP NO 335 PL 25

01
NAS 9-1100

LDW280-18052 A

PART NO LDW280-18052-17-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51789	LM-1(31)	1EA

PART NO. LDW280-18052-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-6(36)	1
	54791	LM-5(35)	1
	54791	LM-4(34)	1
	52791	LM-3(33)	1
	52791	LM-2(32)	1
	28791	LM-1(31)	1
LM	LDW280-28791	LTA-8(18)	1

PART NO. LDW280-18052-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23791	LTA-3(13)	7

PART NO. LDW280-18052-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO. 50-2	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-6(36)	2
	54791	LM-5(35)	2
	54791	LM-4(34)	2
	52791	LM-3(33)	1
	52791	LM-2(32)	1
	28791	LM-1(31)	5
	28791	LTA-8(18)	5
LM	LDW280-23791	LTA-3(13)	1

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REC INFO			
		PRIM NO.			EMF
LAST DASH NO. USED	-19	207			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS9-1100 | LINE ITEM # 1 | DOCUMENTATION TYPE II

DRAWN BY		RELIABILITY	
LAYOUT BY	RAGAS 6-30-60		
CHECKED BY			
GR LEADER	J.STRAKOSCH 7-9-66		
VEH DES INT	L.PAULSRUD 7-9-66		
STRUCTURES	FEB 7-15-66	PROJ ENGR	R.CARBEE 7-29-66
STRUCTURES	R HILDERMAN 7-16-66	REL GROUP	C BOTTI 8-1-66
WEIGHTS	D. ROBESCH 7-21-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE PANEL ELECT
SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18052	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

THIS DWG SUPERSEDES LDW280-18052 NO CHG 8-1-66

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REV NO CHG LOFTED DWG WAS DIMENSIONED DWG. ADDED SH 1.10 SH 1 OF 4 WAS SH 1 OF 3 ART STENBERG 10-6-66						
A	1	1.00, 1.10, 2.00 & 3.00						EO A1	IN FLD, B/M & NEXT ASSY BLOCK ADDED -15. ADDED LTA-8, LM-1 EFF TO -11.	LTA-8 (18) LM-1 (31)	NOT	REQD	ART STENBERG 10-6-66		
	2	1.00, 1.10, 2.00 & 3.00						EO A2	ADDED -17 & -19	LM-1 (31)	NOT	REQD			
	3	1.00, 1.10,					✓	EO A3	IN MOD/BLK FOR LTA-3 (13) LDW280-18052-13 QTY 7 REQD WAS 6 REQD LDW280-18052-11 QTY 1 REQD WAS 2 REQD	LTA-3-(13)		-11 -13			
	4	1.00 & 1.10						EO A4	IN TOLERANCE BLOCK IN TOLERANCE FOR FRACTIONS ± 1/32 WAS ± 1/2	NOT REQD	NOT	REQD			
	5	1.00 & 1.10						EO A5 Ⓡ	FOR -11 & -15 ADDED LM-2 THRU LM-6 REQUIREMENTS	LM-2 THRU LM-6					

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEGHTS	RELIABILITY					
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18052
A
SCALE NONE
SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18052-19	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.090 x 1 7/8 x 2 7/8	NONE	88	
		↑ -17	↑	BRACKET	↑	QQ-A-250/4	2024-T3	.040 x 3 1/8 x 4 3/4	NONE	88	
		-15		DOUBLER		|	2024-T3	.040 x 2 1/2 x 2 1/2	NONE	88	
		↓ -13	↓	CLIP	↓	↓	2024-T3	.063 x 2 x 2 1/8	NONE	88	
		LDW280-18052-11	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x 1 3/4 x 2 1/8	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

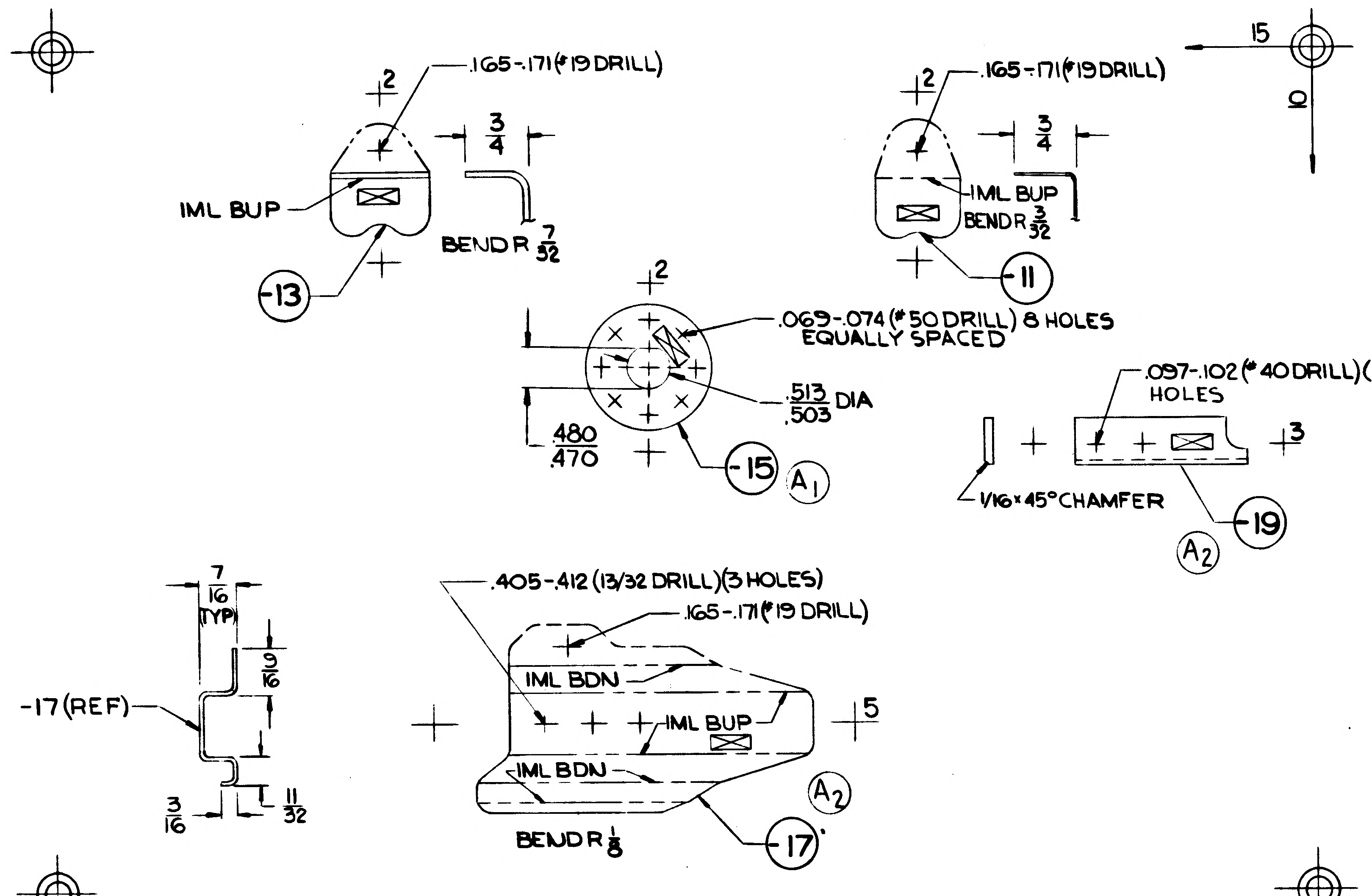
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18052	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

01 NAS 9-1100

NOTES:
NO TOOLING HOLES PERMITTED IN PARTS.



.165-.171(#19 DRILL)
2
3/4
IML BUP
BEND R 7/32
-13
.165-.171(#19 DRILL)
2
3/4
IML BUP
BEND R 3/32
-11
15
10
2
.069-.074 (#50 DRILL) 8 HOLES EQUALLY SPACED
.513/.503 DIA
.480/.470
-15
A1
.097-.102 (#40 DRILL)(2) HOLES
3
1/16×45° CHAMFER
-19
A2
7/16 (TYP)
9/16
-17 (REF)
3/16
11/32
.405-.412 (13/32 DRILL)(3 HOLES)
.165-.171(#19 DRILL)
IML BDN
IML BUP
IML BDN
5
BEND R 1/8
-17
A2

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE C	CODE IDENT NO. 26512	LDW280-18052	R A
MODEL OR END ITEM	SCALE FULL			SHEET 3.00

LDW280-18052 A

FOR PHOTO REPRODUCTION K2

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NAS 9-1100

Id.G.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18052		EO NO. A4
CONTROL INFO NO. LEM-Z-2672		

IN TOL. BLOCK: REVISE TOLERANCE AS SHN.:

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES		
± 1/32*	± .020	± 1/2°

*NOTE: WAS ± 1/2

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: DRAFTING ERROR

DESCRIPTION OF EO: IN TOLERANCE BLOCK: IN TOLERANCE FOR FRACTIONS ± 1/32 WAS ± 1/2

Ⓔ GAEC C EO RELEASE: E

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		NOT REQ'D	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT REQ'D	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JRS				cam	cam	PNE (WR)	
DATE	9/15/66	10-3			9-7-66	9-7-66	9-9-66	9/7/66
9-7-66	VDI	~~SUPPORT~~ WS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E2	CLIP D/S - BEAM PANEL ELECT SUPT.	LDW280-18052	A4

ISSUED BY LIAISON / E. NEFF X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18052	EO NO.	A5
CONTROL INFO NO.	LDW280A-0285		

REVISE M/B AS SHOWN BELOW:

(-11) ADD N/A LDW280-52791 1 REQ'D/MOD ON LEM-2 & 3
ADD N/A LDW280-54791 2 REQ'D/MOD ON LEM-4, 5, & 6

(-15) ADD N/A LDW280-52791 1 REQ'D/MOD ON LEM-2 & 3
ADD N/A LDW280-54791 1 REQ'D/MOD ON LEM-4, 5, & 6

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL REQUIREMENTS	FOR -11 & -15 ADDED LEM 2 THRU LEM-6 REQUIREMENTS	LE 9.15

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LEM	LEM-2(32) THRU LEM-6(36)		

DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY		LBy					RMC	
✓ REVISE DWG	NOT REQ'D	DATE	9/9/66	9/19/66			9/9/66		9-14	9/13/66
RECORD EO	REWORK SCRAP	9-9-66	VDI	~~SUPPORT~~ WT.	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D.S.-BEAM PANEL ELECT. SUPT.	LDW280-18052	A5

ISSUED BY J. Bukowski / J. LANG. EXT. 1153 SECTION VDI GROUP NO. 335 PL 35

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NAS 9-1100

B

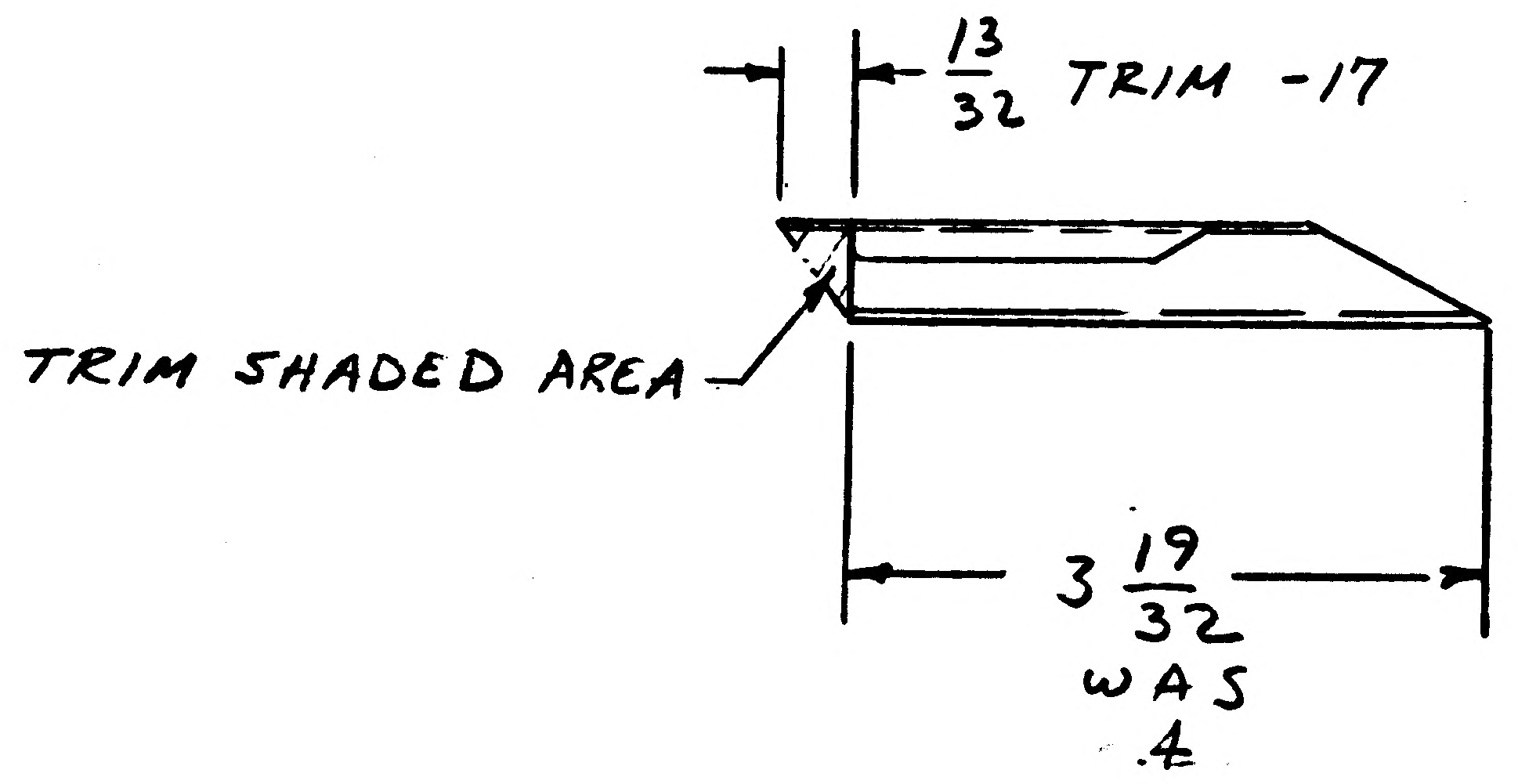
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280 -18052		EO NO. B1
CONTROL INFO NO. LM 5-11814		

IN F/D REVISE -17 AS SHN.

RELEASED BY LIAISON



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE CLEARANCE BETWEEN ELECT LINES & PROP LINES.	TRIMMED -17	✓ FR

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
				APPROVED BY	WT			~	DV		RM	
✓		✓		DATE	2/9/67			~	2/10	2-10-67	2-20-67	2-11-67
REVISE DWG	RECORD EO	REWORK	SCRAP	-1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP O/S-BEAM PANEL ELECT SUPT	LDW280-18052	B1

ISSUED BY DON RAGAS X4153 SECTION VD1 GROUP NO. 335 PL 5

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GRUMMAN AIRCRAFT ENGINEERING CORP
CODE IDENT NO. 26512
ENGINEERING ORDER

*MF-A

DWG NO. LEO280
EO NO. 478
CONTROL INFO NO. LDW280A5573

*

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45) QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280M17179 ✓	B1	SEE DRAWING
M17193 ✓	A3	
M17207 ✓	B5	
M17272 ✓	B1	
M17282 ✓	B1	
M17299 ✓	B1	
M17301 ✓	B4	
M17331 ✓	D1	
M17360 ✓	A7	
M17488 ✓	B1	
M17502 ✓	B1	
M17506 ✓	A1	
M17641 ✓	A3	
-17131 ✓	C4	
-17162 ✓	D1	
-17231 ✓	B5	
-17362 ✓	B2	
-17375 ✓	B3	
-17661 ✓	A1	
-17742 ✓	A1	
-17969 ✓	B1	
-18062 ✓	B2	
-18101	A4	
-18118	A1	
-23689	A1	
-23691	B3	
-23694	B1	
-23722	A4	
-54516	B4	
LDW280-		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D

APPROVED BY: V.D.I. — DATE 2/?/67 — STRESS GROUP 2/15/67 — PROJ ENGRG 2-16-67 — GOVT 2-17-67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO280

EO NO.: 478

ISSUED BY M. GREY / J. STRAKOSCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

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NAS 9-1100

4 G

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 518
CONTROL INFO NO. A-2-3386

IN MODEL BLOCK DELETE LM-4(34) THRU LM-15(45) EFFECTIVITY FROM THE DRAWINGS AND THEIR NOTED DASH NUMBERS WHICH ARE LISTED BELOW FOR NEXT ASSEMBLY LDW280-54791 ONLY.

DRAWING NUMBER	DASH NO.	CHANGE NO.	TITLE	EFFECTIVITY
LDW280-17999	-11	A7	SEE DRAWING	**
-18035	-25	B1		**
-18038	-11	B1		**
-18052	-11 & -15	B3		**
-18064	-13	A10		**
LDW280-18101	-15 & -21	A6	SEE DRAWING	**

** DENOTES LM-4(34) THRU LM-15(45) EFFECTIVITY
* DENOTES APPLICABLE DASH NUMBERS IN DESCRIPTION OF EO

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

2
C

REASON FOR EO: PARTS ARE NOT REQUIRED. USAGE RESTRICTED TO EARLIER VEHICLES

DESCRIPTION OF EO: FOR DASH *, DELETED LM-4(34) THRU LM-15(45) FOR NEXT ASSEMBLY LDW280-54791.

GAEC EO RELEASE: JK

02131

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓
APPROVED BY / DATE: -1-

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
			3/17/67	3/16/67	3/16

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 518

ISSUED BY LIAISON J. MALONEY 3/16/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01
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LDW280-18053

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25716	LTA-5(15)	1
PART NO. LDW 280-18053-11		GAEC SCH NO. 50-1	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED E

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO. 207 FR(001) MP 7/21/66

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY R. O'CONNOR
LAYOUT BY R. O'CONNOR
CHECKED BY
GR LDR 7/12/66
V.D.I. 7/26
STRUCT 7/20
STRUCT 7/20
WEIGHTS 7-27
PROJ ENGR 7-29
REL GROUP Botti 8-2-66

®
GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - AFT UPPER
DECK - He GSE SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18053
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHG LAST REV "NO CHANGE" ADDED SH 1.10 LOFTED DRAWING WAS DIM. A. OCCHINO 7/12/67						

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18053
SCALE NONE		SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18053-11	E	CHANNEL	AL ALY SH	QQ-A-250/12	7075	.040×2¼×10½	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18053

SCALE NONE SHEET 2.00

ENG 77.2 7-65

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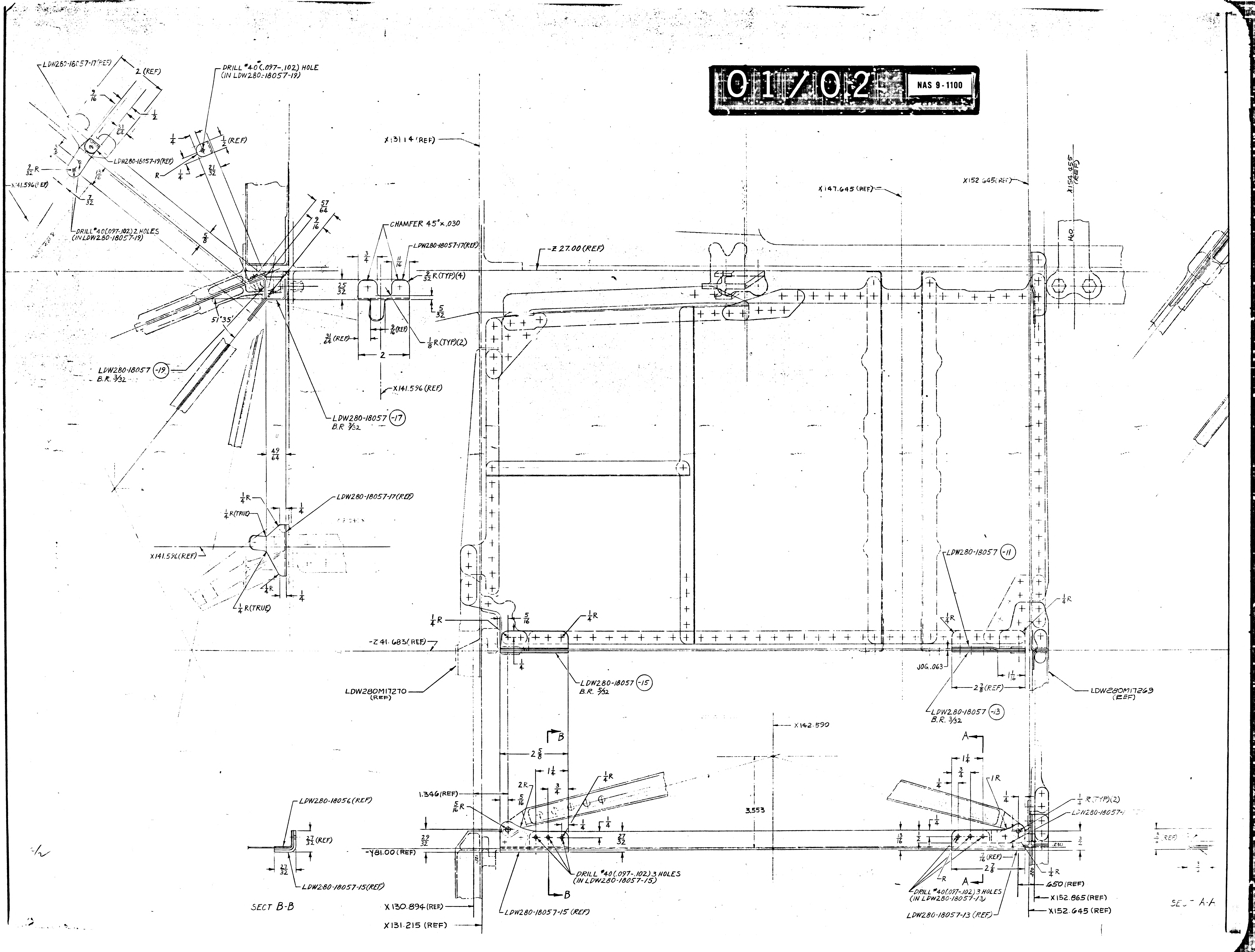
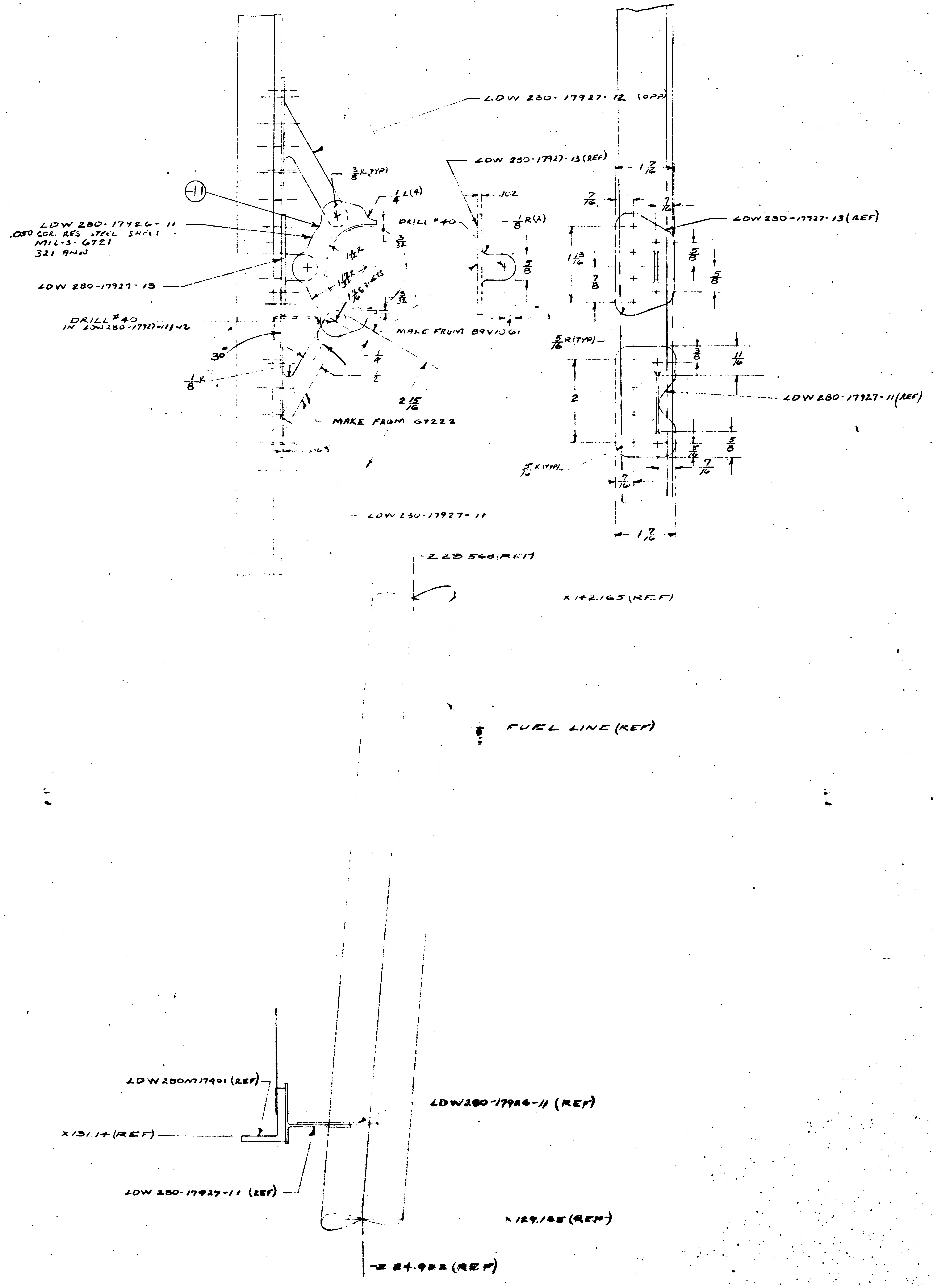
NAS 9-1100

01/02 NAS 9-1100


LDW280-18057-17(REF)
2 (REF)
9/16
1/2
31/64
DRILL #40 (.097-.102) HOLE (IN LDW280-18057-19)
1/4
1/2 (REF)
R
1/4
21/32
LDW280-18057-19(REF)
9/32 R
13/16
X141.596(REF)
7/32
DRILL #40(.097-.102) 2 HOLES (IN LDW280-18057-19)
5/8
57/64
9/16
CHAMFER 45° x .030
LDW280-18057-17(REF)
3/4
11/16
9/32 R (TYP)(4)
25/32
5/32
51°35'
31/64 (REF)
9/16 (REF)
1/8 R (TYP)(2)
2
X141.596 (REF)
LDW280-18057 (-19) B.R. 3/32
LDW280-18057 (-17) B.R 3/32
49/64
1/4 R
1/4 R (TRUE)
1/4
LDW280-18057-17(REF)
X141.596(REF)
1/4 R
1/4
1/4 R (TRUE)
X131.14 (REF)
-Z 27.00 (REF)
X147.645 (REF)
X152.645 (REF)
X154.955 (REF)
1.40
LDW280-18057 (-11)
1/4 R
1/4 R
5/16
1/4 R
1/4 R
-Z 41.683 (REF)
1/4
LDW280M17270 (REF)
LDW280-18057 (-15) B.R. 5/32
JOG .063
2 7/8 (REF)
1 1/16
LDW280M17269 (REF)
LDW280-18057 (-13) B.R. 3/32
X142.590
B
2 5/8
A
1 1/4
3/4
1/4
1 R
1/4
1/4 R (TYP)(2)
LDW280-18057-
1 1/4
2 R
1/4 R
3/4
1.346 (REF)
5/16 R
5/16
3.553
29/32
1/4
1/4
27/32
13/16
1/2
1/4
.230
3/4
-Y81.00 (REF)
7/16 (REF)
2 7/8
R
1/4 R
A
.650 (REF)
DRILL #40 (.097-.102) 3 HOLES (IN LDW280-18057-15)
B
DRILL #40 (.097-.102) 3 HOLES (IN LDW280-18057-13)
X152.865 (REF)
X152.645 (REF)
LDW280-18057-13 (REF)
LDW280-18057-15 (REF)
X130.894 (REF)
X131.215 (REF)
LDW280-18056 (REF)
27/32 (REF)
27/32
LDW280-18057-15 (REF)
SECT B-B
SECT A-A



LDW 280-17927-12 (OPP)
LDW 280-17927-13 (REF)
3/8 R (TYP)
1/4 R (4)
-11
LDW 280-17926-11
.050 COR. RES STEEL SHEET
MIL-S-6721
321 ANN
DRILL #40
.102
1/8 R(2)
3/32
1 1/32 R
1 17/32 R
1 7/16 E RIVETS
5/8
LDW 280-17927-13
DRILL #40 IN LDW280-17927-11 & -12
MAKE FROM 89V1061
30°
1/8 R
1/4
1/2
2 15/16
MAKE FROM 69222
.063
LDW 280-17927-11
1 7/16
7/16
1 13/16
7/8
5/16 R (TYP)
3/8
11/16
2
LDW 280-17927-11 (REF)
5/16
5/16 R (TYP)
Z 23.568 (REF)
X 142.165 (REF)
FUEL LINE (REF)
LDW280M17401 (REF)
X131.14 (REF)
LDW280-17926-11 (REF)
LDW 280-17927-11 (REF)
X 129.165 (REF)
Z 84.922 (REF)

NO.	FINISHES	GRUMMAN STD SPEC	MILITARY SPEC NO.
2	CADMIUM PLATE	G. S. S.	
10	ZINC CHROMATE PRIMER	G. S. S.	
15	TINTED PRIMER: 1 COAT	G. S. S.	
76	ALODINE	G. S. S.	
86	ANODIZE	G. S. S.	

RECORD E. O.'s		
MODEL	E O NUMBER	MODULE NO.

SYM	PROCESSES	GRUMMAN STD SPEC	MILITARY SPEC NO.
	AL HEAT TREAT		MIL-H-6088
	MAGNAFLUX		MIL-I-6868
	PENETRANT INSPECTION (ZYGLO)		MIL-I-6866
	THREADING		MIL-S-7742
	STEEL HEAT TREAT PSI ROCKWELL C TO C		

MANUFACTURING OPERATIONS

NOTES CHECKED ✓ APPLY TO THIS DWG.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES EXCEPT AS NOTED.	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031 EXCEPT AS NOTED.	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10 EXCEPT AS NOTED.	
200 FOR ALL DRILLED HOLES UNLESS OTHERWISE SPECIFIED.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ∫ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	

REVISIONS														
REVISION LETTER	ITEM NO.	ZONE	AUTHORITY FOR REVISION					DESCRIPTION	REVISED BY AND DATE	EFFECTIVE ON MODULE NUMBER	DISPOSITION OF EXIST PARTS		ENGRG APPD	GOVT APPD
			GRUMMAN INFO ONLY / DCRF OR ECP	CLASS II	CLASS I	DET SPEC REQ	ENGRG ORDER				RE-WORK	SCRAP		

DWG. SIZE 28 X

1) NO TOOLING HOLES PERMITTED IN PARTS
2) LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT
3) INFORMATION OTHER THAN THAT REQUIRED TO MANUFACTURE LDW 280-17926-11 IS FOR REFERENCE ONLY

02/02

NAS 9-1100

QTY REQ'D PER ASSY			PART OR IDENTIFYING NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE (EA)	PROCESS SYMBOL	FINISH NO.	UNIT WT	ZONE
			LDW280-17926-11	E		RING	COR. RES. STEEL SH	MIL-S-6721	321 ANN	.050 X 2 1/4 X 3 1/2	NONE	NONE		

MODEL	NEXT ASSY	MODULE NO.	REQ'D PER MODULE	MODEL	NEXT ASSY	MODULE NO.	REQ'D PER MODULE
LEM	LDW280-17388-526	LEM 6 (36)					
LEM	LDW280-17388-526	LEM 5 (35)					
LEM	LDW280-17388-526	LEM 4 (34)					
LEM	LDW280-17388-526	LEM 3 (33)	1				
LEM	LDW280-17388-526	LEM 2 (32)	1				
LEM	LDW280-17388-526	LTA 3 (13)	1				
PART NO. LDW 280-17926-11		GRUMMAN SCH INFO 50-1		PART NO.		GRUMMAN SCH INFO	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2

DRAWN BY		
CHECKED BY		
LAYOUT BY	AMBROSIO	
GR. LEADER	[illegible]	
VEH DES. INT	[illegible]	
STRUCTURE	[illegible]	
STRUCTURE	[illegible]	5-6
WEIGHTS	[illegible]	5-6
RELIABILITY		
PROJ ENGR	[illegible]	5-6
REL GROUP	[illegible]	5-6

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	
GRUMMAN REL INFO	
PRIM. NO.	215

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L.I., N.Y.

RING D/S ENG
FUEL LINE

CONTRACT NO. NAS-9-1100 DOCUMENTATION TYPE

CODE IDENT NO.	SIZE	
26512	H	LDW280-17926

SCALE FULL SHEET

THIS IS AN ORIGINAL DRAWING

LDW280-18054 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54682	LM-15 (45)	2
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
		LM-10 (40)	2
		LM-9 (39)	2
		LM-8 (38)	2
		LM-7 (37)	2
		LM-6 (36)	2
		LM-5 (35)	2
	LDW280-54682	LM-4 (34)	2
	LDW280-52570	LM-3 (33)	1
	LDW280-52570	LM-2 (32)	1
	LDW280-28570	LM-1 (31)	1
LM	LDW280-28570	LTA-8 (18)	1
PART NO. LDW280-18054-11		GAEC SCH NO. 51-5 51-4	

WORK PKG FUNCTION NO.110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00				
REV	A	A	A	A				
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-11	PRIM NO. 207	JK/001 MP-14A 6/26/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.	NAS 9-1100	LINE ITEM	DOCUMENTATION TYPE II
DRAWN BY	R. NISBET 4-7-67	RELIABILITY	
LAYOUT BY	J. ROGERS		
CHECKED BY	J. Bell 4-12-67		
GR. LEADER	[illegible] 4/12/67		
VEH. DES. INT			
STRUCTURES	JH [illegible] 6/20/67	PROJ ENGR	[illegible] 6/22
STRUCTURES		REL GROUP	Botti 6-26-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE~ELECTRONIC REPLACEABLE ASSY
SPT.~LOWER DECK ATTACHMENT SPT.

SIZE	CODE IDENT NO.		
B	26512	LDW280-18054	A
SCALE	NONE	SHEET 1.00 OF 4	

(1)

ENG 77.1 12-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.00, 1.10, 2.00 & 3.00					✓	E.O. A1	INITIAL DRAWING RELEASE, PARTS MADE PER E.O.	LTA-8, LM-1, -2 & -3	NOT	REQD	R. NISBET 4-7-67		
	2	1.00 & 1.10						E.O. A2	ADDED N/A LDW280-54682 TO-11 MOD. BLOCK (2 REQD/MOD.) FOR LM-4 THRU LM-15. N.F.	LM-4 THRU LM-15	NOT	REQD			

	LTR	~~GROUP LDR~~	VEH.DES.INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	PRO.
CHG APPROVED	A		JAS 6/19/67					

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18054	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18054-11	E		DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.090 X 2 X 3	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18054
A
SCALE NONE
SHEET 2.00

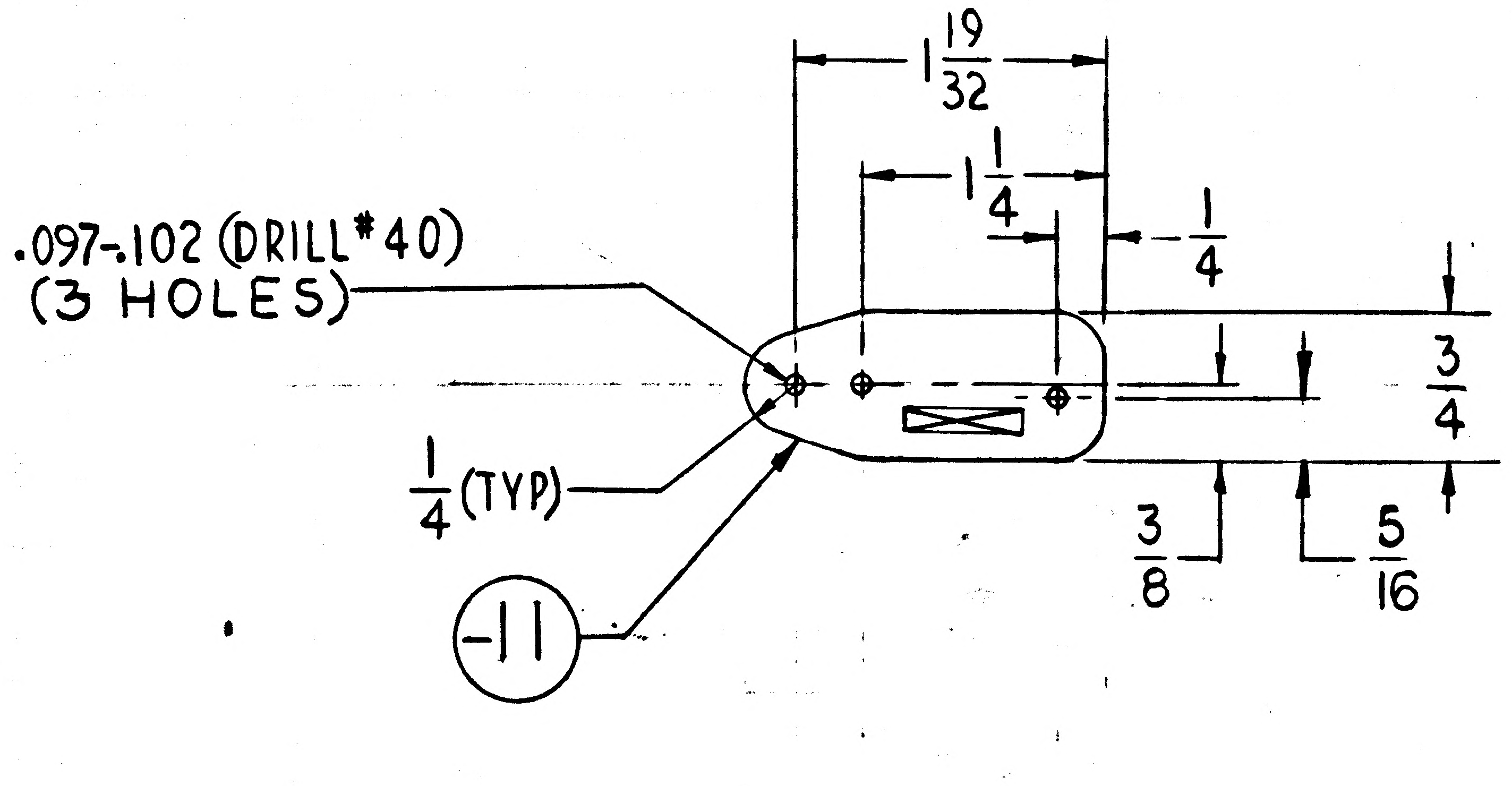
ENG 77.2 5-64

01

NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓



$1\frac{19}{32}$
$1\frac{1}{4}$
$\frac{1}{4}$
.097-.102 (DRILL #40) (3 HOLES)
$\frac{3}{4}$
$\frac{1}{4}$ (TYP)
$\frac{3}{8}$
$\frac{5}{16}$
-11

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18054	A
SCALE FULL		SHEET 3.00	

ENG 73.1 6-64

01 NAS 9-1100

A

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG NO. LDW280-18054
EO NO. A2
CONTROL INFO NO. LDW280A 4760

IN -11 MOD BLOCK ADD N/A LDW280-54682 (2) REQ'D/MOD FOR LM-4(34) THRU LM-15(45)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADD PROVISIONS FOR G.S.E. ATTACHMENT	ADDED N/A LDW280-54682 TO-11 MOD/BLK (2 REQD/MOD) FOR LM-4 THRU LM-15.	2/8/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4/34	
LM		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓		NOT	REQD	DATE 1-24-67	1/24/67				2/3/67		2-6-67	2/6/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOUBLER ~ D.S. ~ EXA SPT ~ LWR DECK ATTACHMENT SPT	LDW280-18054	A2

ISSUED BY J. ROGERS/J. STRAKOSCH X1392 SECTION VEH DES & INT GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18054
EO NO. B1
CONTROL INFO NO. LDW280B3390

IN MOD BLOCK ON-11 ADD N/A LDW280-54570 (1 REQD/VEH)
EFF: LM-4(34) THRU LM-15(45)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2011 PKG#19 CCA 668-3	(5)

REASON FOR EO: ADDITIONAL REQMTS FOR SPT OF GSE. EPS. BATT WORK PLATFORM, REVISED DUE TO INTERFERENCE WITH MESS PKG

DESCRIPTION OF EO: ON-11 ADDED N/A LDW280-54570.

GAEC C EO RELEASE: JK 5/16/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	Jgl			P&T	WPH		Jap	JM
✓		NOT	REQD	DATE	5/10/68			5-10-68	5/13/68		5/14/68	5-15-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: DOUBLER ~ D/S ~ E.R.A. SPT ~ LWR DECK ATTACHMENT SPT.
DRAWING NO.: LDW280-18054
EO NO.: B1

CDR. 5/28/68
ISSUED BY J. ROGERS/P. THORJUSEN X1392 SECTION VEH DES & INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18054 EO NO. B2
CONTROL INFO NO. LDW280B 3481

IN MOD BLOCK ON -11 ADD N/A LDW280-66682
(2 REQD/VEH) EFF: LTA-8(18)

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1021-5 PKG# 3 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REVISED DESCENT STAGE BATTERY CONFIGURATION	ON-11 ADDED N/A LDW280-66682 FOR LTA-8(18)	JK 5/23/68

MODEL	EFFECTIVITY EI		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM/11	LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	READ
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	5/16/68	5-16		5-15-68	5/17/68		5/17/68	5-23-68
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOUBLER - D/S - ERA. SPT. LNR DECK ATTACHMENT SPT	LDW280-18054	B2

C.D.R. 5/22/68
ISSUED BY J. J. ROGERS/P. THORJUSEN SECTION VEH DES & INT. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-60

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1332
CONTROL INFO NO. LDW280B 7422

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18038 ✓	B4 ✓	SEE DWG
-18049 ✓	B2	
-18050 ✓	B3	
-18051 ✓	B5	
-18054 ✓	B2	
-18064	B3	
-18065	D2	
-18066	A3	
-18067	A4	
LDW280-18068	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG. 8-9 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EEF FROM -*

GAEC EO RELEASE: HF 4/12

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	4/8/69			4-2-69	4/8/69	4/9/69	4/9/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1332

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG NO. LDW 280-18054 | EO NO. B4
CONTROL INFO NO. LDW 256-109

CHANGE NUMBER B3 WAS B2
REF LDW 280-18054
ON LEO 280-1332

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		(5)

REASON FOR EO: INCORRECT CHANGE No. ISSUED ON LEO280-1332

DESCRIPTION OF EO: CORRECTED CHANGE NUMBER FOR LEO280-1332 B3WAS B2

GAEC EO RELEASE: (2) JK 4/17/9 (8)

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					2			B.K.
DATE	4/17/69			4/17/69			4/17/69	4-17-69

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO
E	DOUBLER ~ D/S ~ ERA. SPT LWR DECK ATTACHMENT SPT	LDW280-18054	B4

ISSUED BY C.N. BOTTI x3877 SECTION ENG DRFT QA GROUP NO. 607 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1530
CONTROL INFO NO. LDW 280B 8106		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 ~~(40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18051 ✓	SEE DWG	B6
18054 ✓		B5
x 18065		D3
18049		B3
LDW280-18050		B4
	SEE DWG	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 26 & 27 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 ([redacted] 23) REQ'MTS

GAEC EO RELEASE
FR 8-8-69
JK 8/9/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓ REVISE DWG / RECORD EO	NOT REQ'D (REWORK / SCRAP)	DATE	7-29-69 VDI			7/29/69	N 8-2-69		8/2/69	~~GOVT~~ Bauman 8-4-69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1530

8-22-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1718
CONTROL INFO NO. LDW280B7959

FOR DASH NO.'S * WITH THE NOTED N/A ON THE FOLLOWING DWGS., REMOVE LM-10(40) THRU LM-14(44) & LTA-11(23) EFF.

DRAWING NO.	DASH NO.*	N/A	TITLE	CHG.
✓ LDW280-17676	-11,-12,-13 ✓	LDW280-54570	SEE DWG.	C3
	-11,-12,-13 ✓	-54682		
✓ -17874	-13,-17 ✓	-54570		B7
	-13,-19 ✓	-54682		
✓ -18054	-11 ✓	-54570		B4
	-11 ✓	-54682		
✓ M17423	-1,-2 ✓	-54570		A6
✓ M17424	-2 ✓	-54570		B2
	-3,-4 ✓	-54682		
M17435	-1 ✓	-54570		B4
	-1,-3 ✓	-54682		
M17436	-1,-2,-4 ✓	-54570		B4
	-1,-2,-3 ✓	-54682		
LDW280 M17437	-2 ✓	-54570		C2
	-1,-3 ✓	LDW280-54682	SEE DWG.	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG. 67 (5)

REASON FOR EO: EPS BATTERIES RELOCATED FROM QI & IV TO -Z BULKHEAD

DESCRIPTION OF EO: FOR * REMOVED LM-10(40) THRU LM-14(44) & LTA-11(23) EFF.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
		LM-14(44)	
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONF~~
APPROVED BY	F.W.L.			PST	[illegible]		[illegible]	[illegible]
DATE	9/30/69			9-30-69	9/30/69		10/1/69	10/1/69

GAEC EO RELEASE ®
P8 10-2-69
SK 10/8/69

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 1718

CDP 10/8/69
ISSUED BY L. KRAVITZ/THORJUSEN x87222 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

LDW280-18055

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28579	LTA-8(18)	1 EA
PART NO. LDW280-18055-11, -13, -15, -17 & -19.		GAEC SCH NO. 51-2	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REF INFO	
LAST DASH NO. USED	-19	PRIM NO. 207	FR(001) MP 7/23/6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	A. CINO 7/15/66	RELIABILITY	
LAYOUT BY	A. CINO 7/15/66		
CHECKED BY			
GR. LEADER	7/20/66		
VEH. DES. INT	7/21		
STRUCT.	7/22	PROJ ENGR	7-29
STRUCT.	7/22	REL GROUP	8-2-66
WEIGHTS	7-27		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE END CLOSURE ~
R.T.G. TRUSS SUPPORT ~ UPPER

SIZE	CODE IDENT NO.	
B	26512	LDW280-18055
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
								Ⓟ	RETRACED NO CHANGE LAST REV NO CHANGE LOFTED DWG WAS DIM DWG ADDED SH. 1.10 A. LITVINOFF 7-13-6.						

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18055
SCALE NONE		SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18055-19	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.063 x 3/4 x 1 1/4	NONE	88	
		↕ -17	E	PLATE	↕	↕	7075-T6	.125 x 1 1/4 x 1 1/2	NONE	88	
		-15	E	ANGLE			7075	.050 x 2 1/4 x 3 1/2	T6	88	
		-13	E	ANGLE			7075	.050 x 2 1/4 x 3 1/2	T6	88	
		LDW280-18055-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.063 X 4 X 4 1/2	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18055

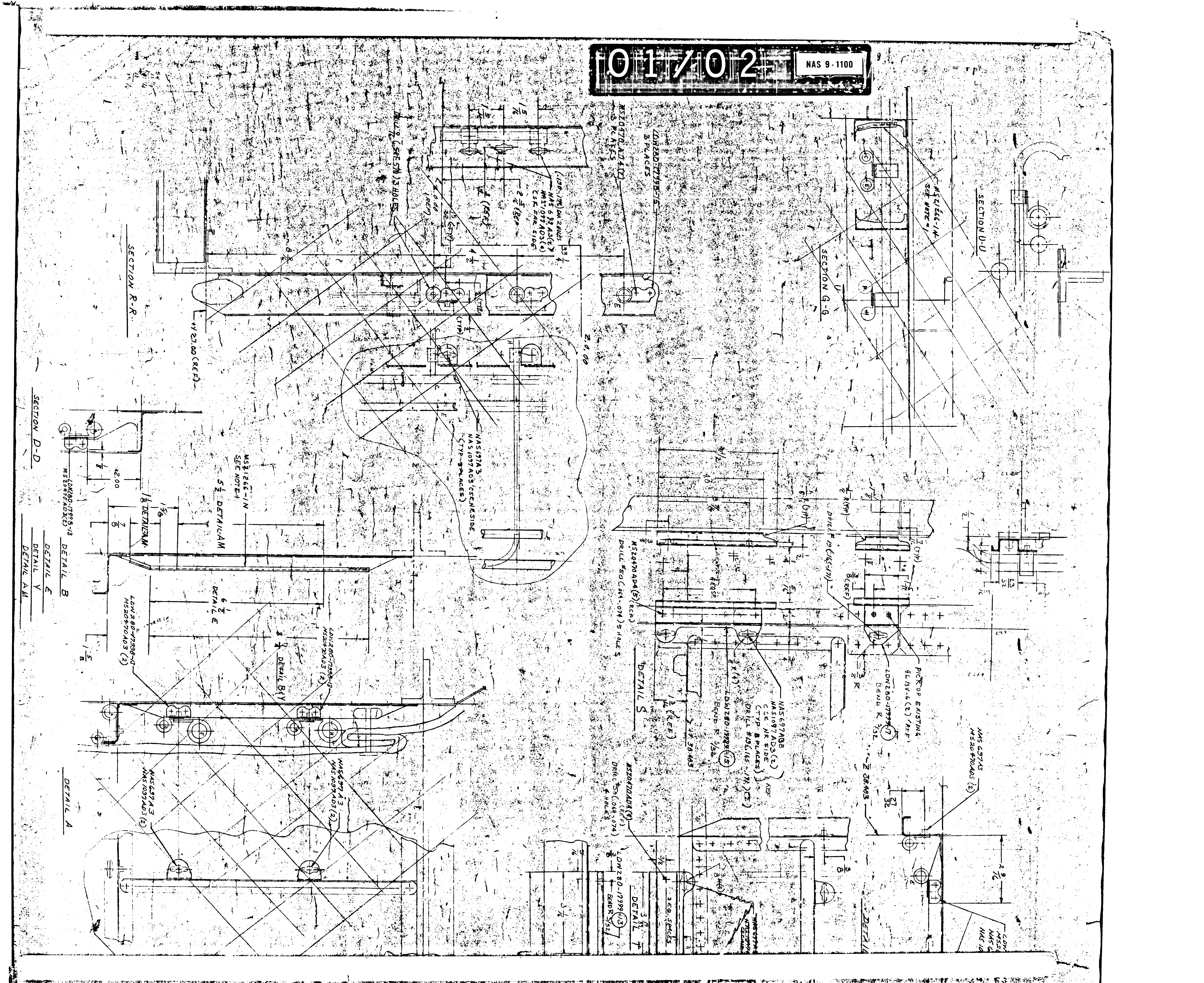
SCALE NONE SHEET 2.00

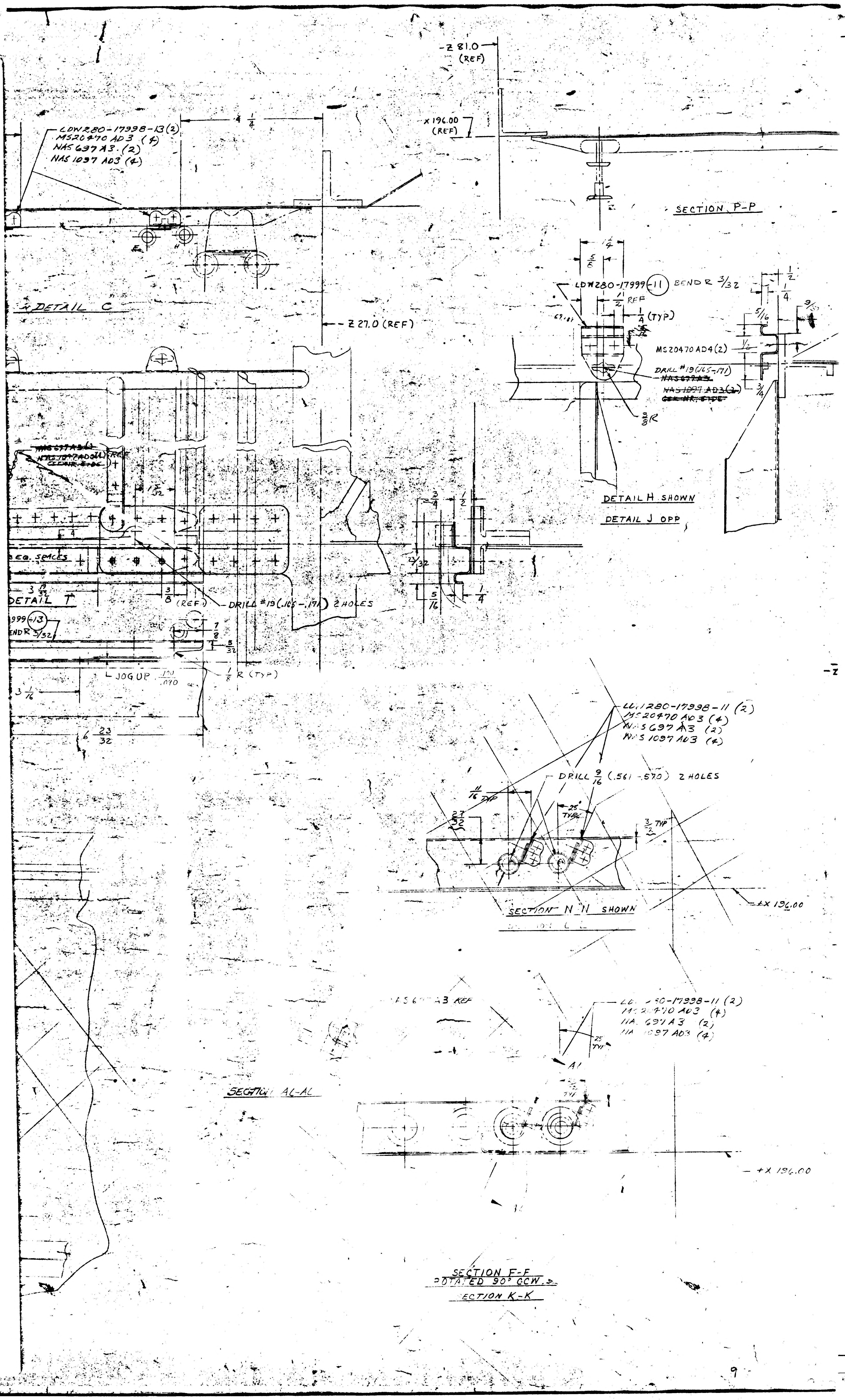
ENG 77.2 7-65

01

NAS 9-1100

01/02 NAS 9-1100


SECTION R-R
SECTION D-D
DETAIL B
DETAIL E
DETAIL Y
DETAIL AM
DETAIL A
DETAIL S
DETAIL T
SECTION G-G
SECTION U-U
MS20470AD4(5)
3 PLACES
NAS697A3
NAS1097AD3 CSK NR SIDE
MS21266-1N
SEE NOTE 1
LDW280-17998-13
MS20470AD3(2)
LDW280-17999-15
BEND R 3/32
DRILL #30(.128-.134) 5 HOLES
PICKUP EXISTING
NAS697A8
NAS1097AD3(2)
CSK NR SIDE
(TYP 8 PLACES)
2.00
12.00
1Y 27.00 (REF)
Z 38.403


-Z 81.0 (REF)
LDW280-17998-13 (2)
MS20470 AD3 (4)
NAS 697 A3 (2)
NAS 1097 AD3 (4)
X 196.00 (REF)
SECTION P-P
DETAIL C
Z 27.0 (REF)
LDW280-17999-11 BEND R 3/32
1/4 (TYP)
MS20470 AD4 (2)
DRILL #19 (.165-.171)
~~NAS 697 A3~~
~~NAS 1097 AD3 (2)~~
DETAIL H SHOWN
DETAIL J OPP
EQ. SPACES
DETAIL T
DRILL #19 (.165-.171) 2 HOLES
(REF)
BEND R 3/32
JOG UP
1/8 R (TYP)
LDW280-17998-11 (2)
MS20470 AD3 (4)
NAS 697 A3 (2)
NAS 1097 AD3 (4)
DRILL 9/16 (.561-.570) 2 HOLES
SECTION N-N SHOWN
+X 196.00
NAS 697 A3 REF
LDW280-17998-11 (2)
MS20470 AD3 (4)
NAS 697 A3 (2)
NAS 1097 AD3 (4)
SECTION AL-AL
+X 196.00
SECTION F-F
ROTATED 90° CCW
SECTION K-K

02/02 NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 x

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36 x) SQ. FT.

1/2 SIZE SHEET AREA (1/4 OF FULL) SQ. FT.

PRINT TRIM LINE

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE K	CODE IDENT NO. 26512	
MODEL OR END ITEM	SCALE		SHEET

LDW280-18056

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28579	LTA-8(18)	1
PART NO. LDW280-18056-11		GAEC SCH NO. 51-2	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1		2	3					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REF INFO

PRIM NO. 207 FR(001) HP 7/23/6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY
LAYOUT BY G. DeAngelis 7-18-66
CHECKED BY
GP LEADER 7/2/66
VEH DES INT 7/21
STRUCTURES 7/22
STRUCTURES Alderman 7/22
WEIGHTS 7-27
RELIABILITY
PROJ ENGR 7-29
REL GROUP Botti 8-1-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE-END CLOSURE
RTG TRUSS SUPT- LOWER

SIZE B
CODE IDENT NO. 26512
LDW280-18056
SCALE NONE
SHEET 1 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18056-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032x4 1/8x6 1/8	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18056

SCALE NONE

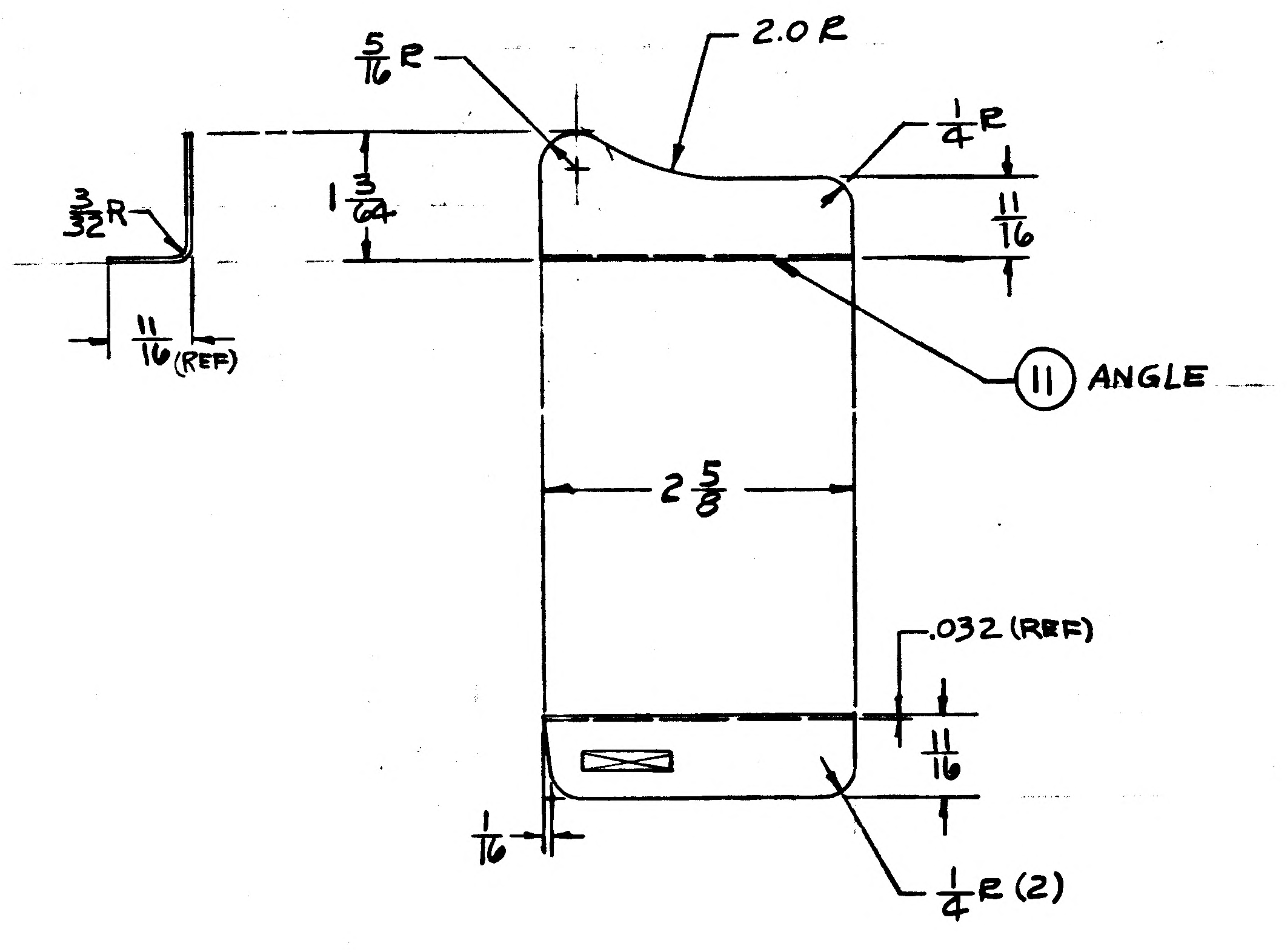
SHEET 2

ENG 77.2 7-65

01

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓



5/16 R
2.0 R
1/4 R
3/32 R
1 3/64
11/16
11/16 (REF)
⑪ ANGLE
2 5/8
.032 (REF)
11/16
1/16
1/4 R (2)

NOTES:

1. NO TOOLING HOLES PERMITTED IN PART
2. FOR LAYOUT RELEASE ONLY. TO BE REDRAWN ON PRODUCTION FORMAT

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LEM	C	26512	LDW280-18056
	SCALE FULL		SHEET 3.20

LDW280-18056

01

NAS 9-1100

LDW280-18057

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28579	LTA-8 (18)	1 EA
PART NO. LDW280-18057-11, -13, -15, -17 & -19		GAEC SCH NO. 51-2	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH										
SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	B	GRUMMAN REL INFO	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-19	207	MP 7/25/66

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	A. CINO 7-18-66	RELIABILITY	
LAYOUT BY	A. CINO 7-18-66		
CHECKED BY			
GR. LEADER	7/20/66		
VEH. DES. INT	7/21		
STRUCT.	7/22	PROJ ENGR	R. M. Carbee (EV) 8/2
STRUCT.	Alderman 7/22	REL GROUP	8-5-66
WEIGHTS	7/30		

® GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE END CLOSURE ~ R.T.G.
TRUSS SUPPORT ~ UPPER & LOWER

SIZE	CODE IDENT NO.	
B	26512	LDW280-18057
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18057-19	E	ANGLE	AL. ALLOY SH.	QQ-A-250/12	7075	.050X1½x3⅜	T6	88	
		↕ -17	E	ANGLE	↕	↕	7075	.050x2¾x3⅜	T6	↕	
		↕ -15	E	ANGLE	↕	↕	7075	.080x2⅞x3⅜	T6	↕	
		↕ -13	E	ANGLE	↕	↕	7075	.050 x 2⅝ x3½	T6	↕	
		LDW280-18057-11	E	PLATE	AL. ALLOY SH.	QQ-A-250/12	7075-T6	.050 X 1 X 3½	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18057

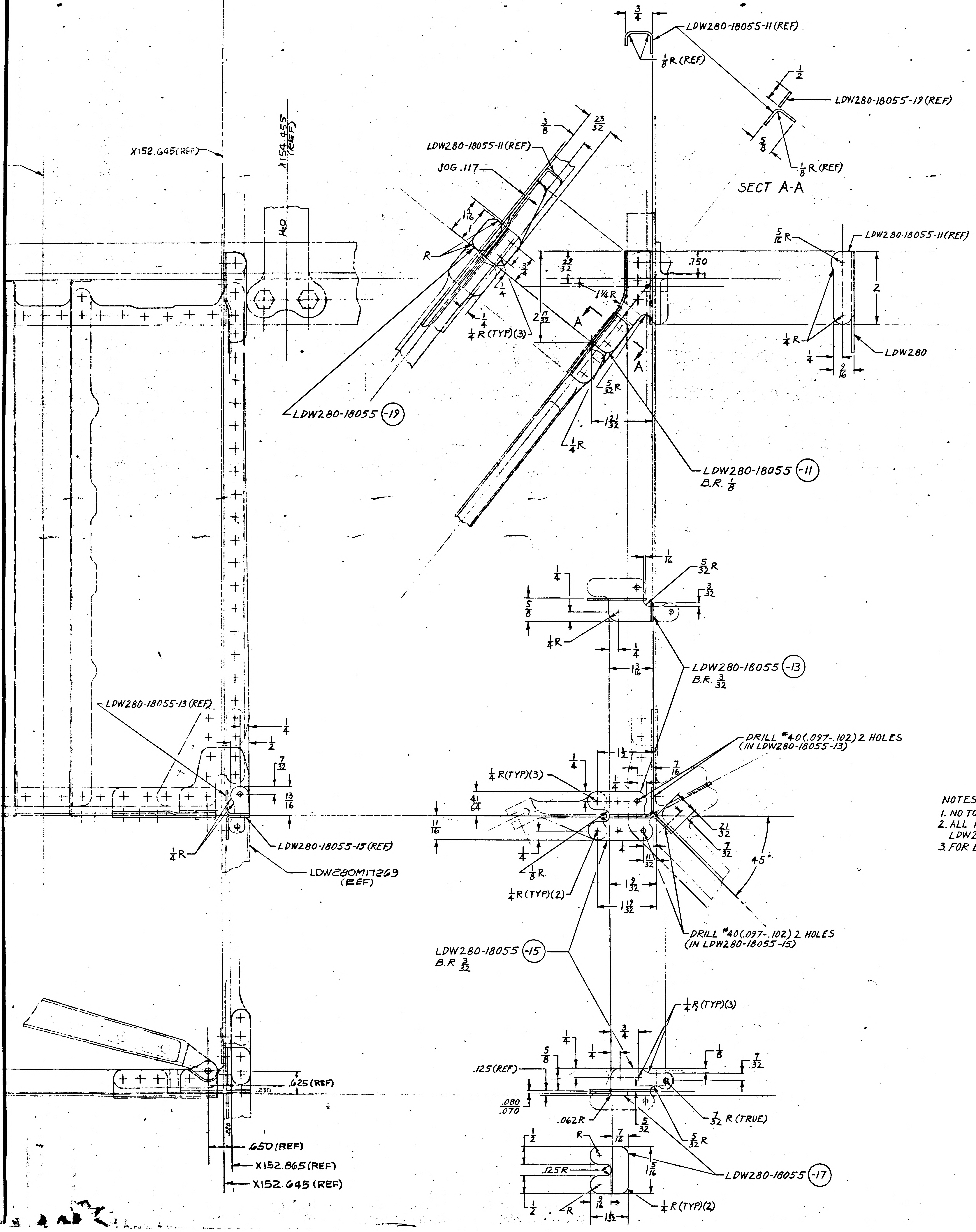
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


LDW280-18055-11 (REF)
1/8 R (REF)
LDW280-18055-19 (REF)
1/8 R (REF)
SECT A-A
X152.645 (REF)
X154.455 (REF)
LDW280-18055-11 (REF)
JOG .117
R
1 1/4 R
1/4 R (TYP)(3)
A
LDW280-18055 -19
5/32 R
1/4 R
LDW280-18055 -11
B.R. 1/8
5/16 R
LDW280-18055-11 (REF)
1/4 R
LDW280
5/32 R
1/4 R
LDW280-18055 -13
B.R. 3/32
LDW280-18055-13 (REF)
DRILL #40 (.097-.102) 2 HOLES
(IN LDW280-18055-13)
1/4 R (TYP)(3)
1/8 R
1/4 R (TYP)(2)
45°
DRILL #40 (.097-.102) 2 HOLES
(IN LDW280-18055-15)
1/4 R
LDW280-18055-15 (REF)
LDW280M17269
(REF)
LDW280-18055 -15
B.R. 3/32
1/4 R (TYP)(3)
.125 (REF)
.080
.070
.062 R
7/32 R (TRUE)
5/32 R
.125 R
LDW280-18055 -17
1/4 R (TYP)(2)
.625 (REF)
.650 (REF)
X152.865 (REF)
X152.645 (REF)

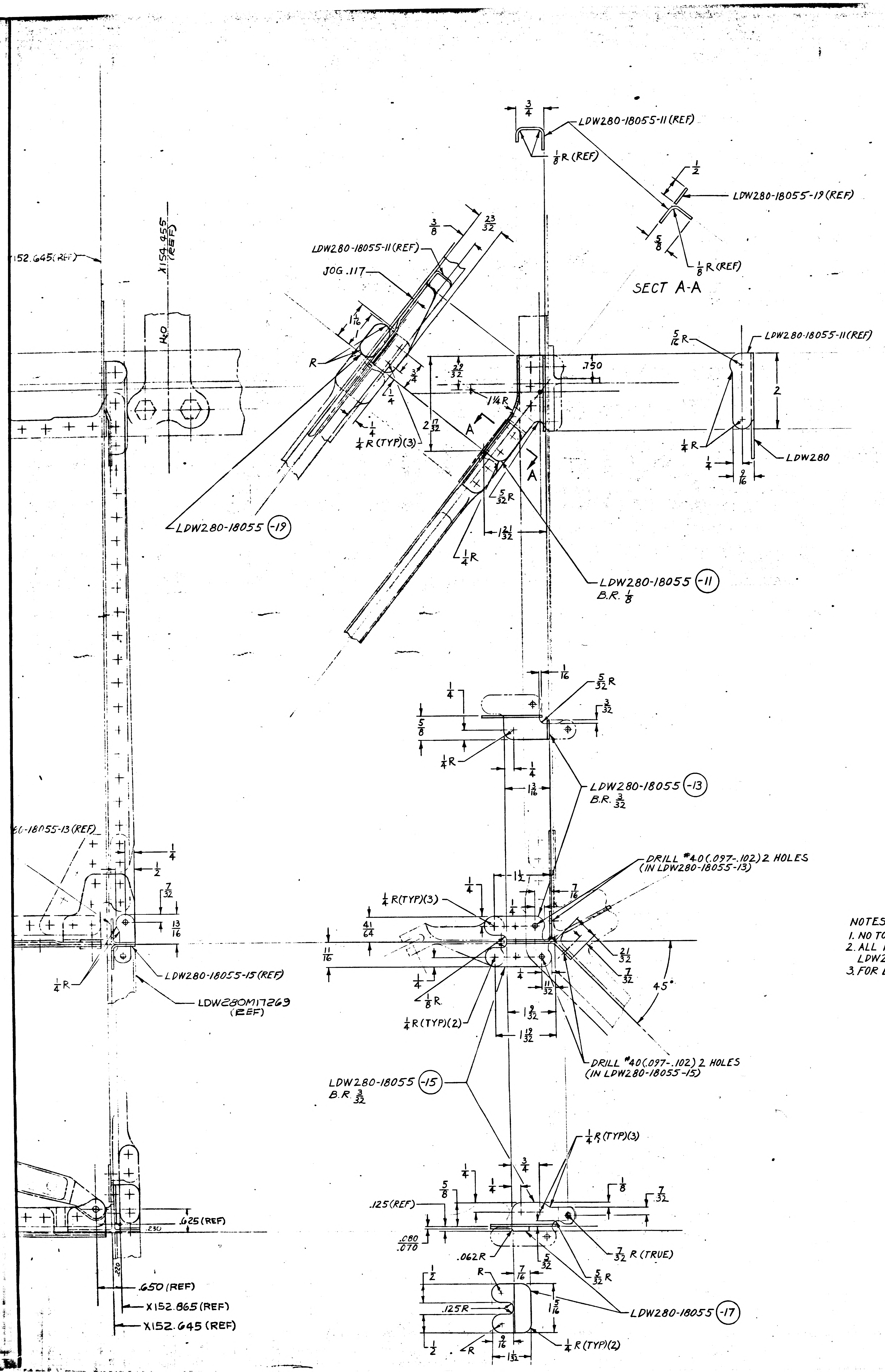
NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ALL INFORMATION NOT REQD FOR THE MANUFACTURE OF
LDW280-18055-11, -13, -15, -17 & -19 IS FOR REFERENCE ONLY.
3. FOR LAYOUT RELEASE ONLY. TO BE REDRAWN ON PRODUCTION FORMAT.

01/02

NAS 9-1100

GRUMMAN A
SIZE J
CODE IDENT 265
E.M.
MODEL OR END ITEM
SCALE FUL

THIS IS AN ORIGINAL


LDW280-18055-11 (REF)
$\frac{1}{8}$R (REF)
LDW280-18055-19 (REF)
SECT A-A
LDW280-18055-11(REF)
JOG .117
X154.455 (REF)
152.645(REF)
LDW280-18055 -11(REF)
.750
$1\frac{1}{4}$R
LDW280
LDW280-18055 ⑲
LDW280-18055 ⑪
B.R. $\frac{1}{8}$
LDW280-18055 ⑬
B.R. $\frac{3}{32}$
DRILL #40(.097-.102) 2 HOLES (IN LDW280-18055-13)
$\frac{1}{4}$R(TYP)(3)
$\frac{1}{4}$R(TYP)(2)
45°
LDW280-18055-15(REF)
LDW280M17263 (REF)
DRILL #40(.097-.102) 2 HOLES (IN LDW280-18055-15)
LDW280-18055 ⑮
B.R $\frac{3}{32}$
.125(REF)
.080
.070
.062R
$\frac{7}{32}$R (TRUE)
.125R
LDW280-18055 ⑰
$\frac{1}{4}$R (TYP)(2)
.625 (REF)
.650 (REF)
X152.865 (REF)
X152.645 (REF)

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ALL INFORMATION NOT REQD FOR THE MANUFACTURE OF LDW280-18055-11, -13, -15, -17 & -19 IS FOR REFERENCE ONLY.
3. FOR LAYOUT RELEASE ONLY. TO BE REDRAWN ON PRODUCTION FORMAT.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

LDW280-18055

LDW280-18055

02/02 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
LEM
MODEL OR END ITEM
SIZE J
CODE IDENT NO. 26512
LDW280-18055
SCALE FULL
SHEET 3.00

THIS IS AN ORIGINAL DRAWING

ENG 73.7 6-64

LDW280-18058

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28587	LTA8-(18)	1
PART NO. LDW280-18058-1		GAEC SCH NO. 50-2	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00					
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REL INFO		
		PRIM NO.	FR(001)	
LAST DASH NO. USED	-11	207	MP 7/27/66	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY			
LAYOUT BY	JOHN LANG 7/13/66		
CHECKED BY			
GP LEADER	2/19/66		
VEH DES INT	7/19		
STRUCTURES	7/21/66	PROJ ENGR	7-29
STRUCTURES	7/22	REL GROUP	8-1-66
WEIGHTS	7-28		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET-D.S.-SUPERCRITICAL HELIUM TANK SIMULATOR LINES - SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18058
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
6		NAS1097AD3	E	RIVET	STD PART						
3		NAS697C08	E	PLATE NUT	STD PART						
1		LDW280-18058-11	E	BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.040 × 3 × 4 1/2	NONE	76	
		LDW280-18058-1	E	BRACKET ASSY							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T3	HEAT TREAT	MIL-H-6088
76	ALODINE	LSP-14-9010

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

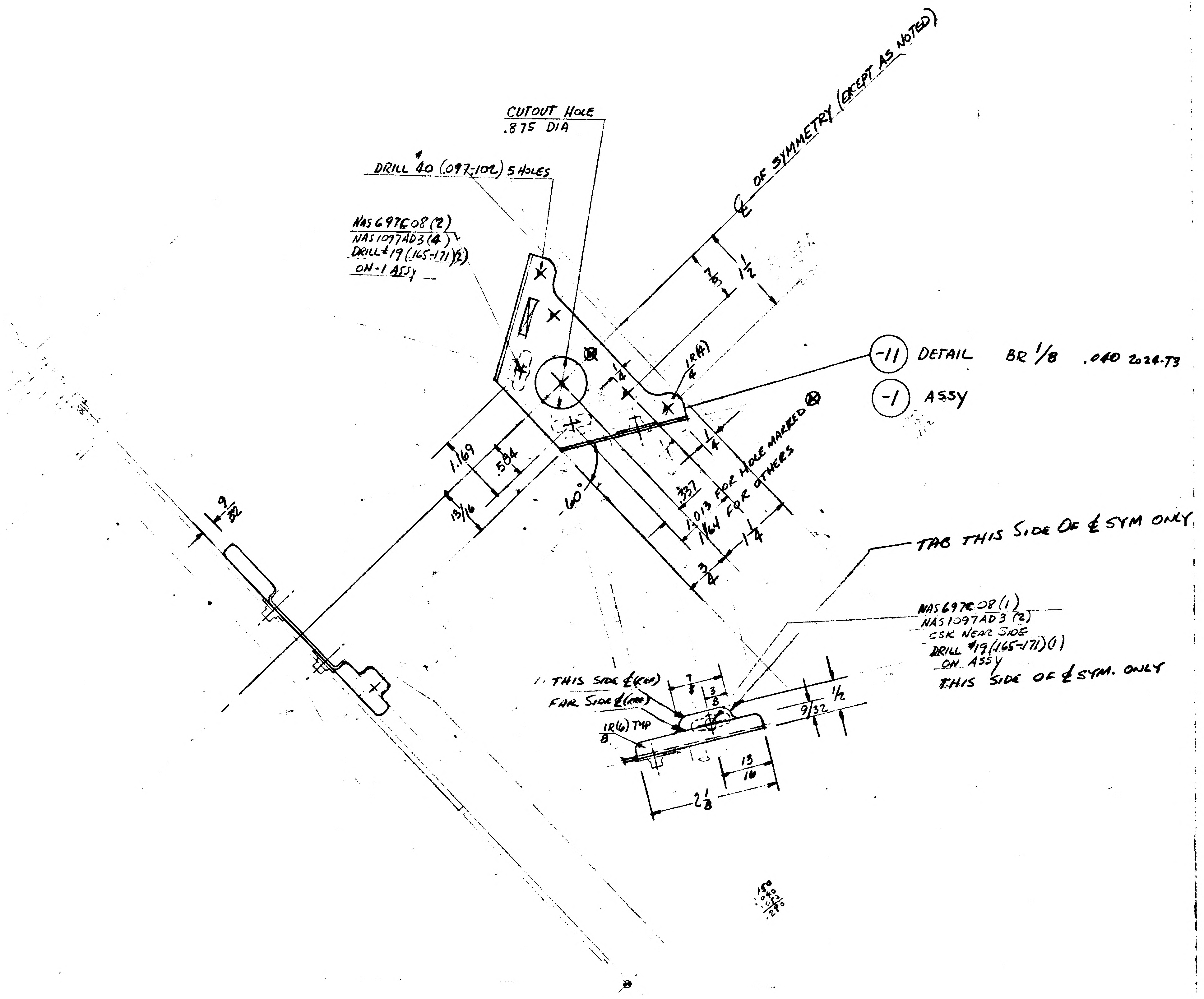
SIZE	CODE IDENT NO.	
B	26512	LDW280-18058

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


CUTOUT HOLE
.875 DIA
DRILL #40 (.097-.102) 5 HOLES
NAS697C08 (2)
NAS1097AD3 (4)
DRILL #19 (.165-.171) (2)
ON -1 ASSY
℄ OF SYMMETRY (EXCEPT AS NOTED)
1 1/2
7/16
1R (4)
1/4
1/4
-11 DETAIL BR 1/8 .040 2024-T3
-1 ASSY
1.169
.584
13/16
60°
.337
1.013 FOR HOLE MARKED ⊗
1 1/64 FOR OTHERS
1 1/4
3/4
9/32
TAB THIS SIDE OF ℄ SYM ONLY
NAS697C08 (1)
NAS1097AD3 (2)
CSK NEAR SIDE
DRILL #19 (.165-.171) (1)
ON ASSY
THIS SIDE OF ℄ SYM. ONLY
THIS SIDE ℄ (REF)
FAR SIDE ℄ (REF)
7/8
3/8
1/2
9/32
1R (6) TYP
8
13/16
2 1/8

LAYOUT RELEASE - TO BE
REDRAWN ON PRODUCTION FORMAT

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	✓
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	✓
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 28 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (30 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

LDW280-18058

LDW280-18058

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
LEM	SIZE H	CODE IDENT NO. 26512	LDW280-18058
MODEL OR END ITEM LEM	SCALE FULL		SHEET 3.00

01 NAS 9-1100

ENG 32.1 REV 3-65

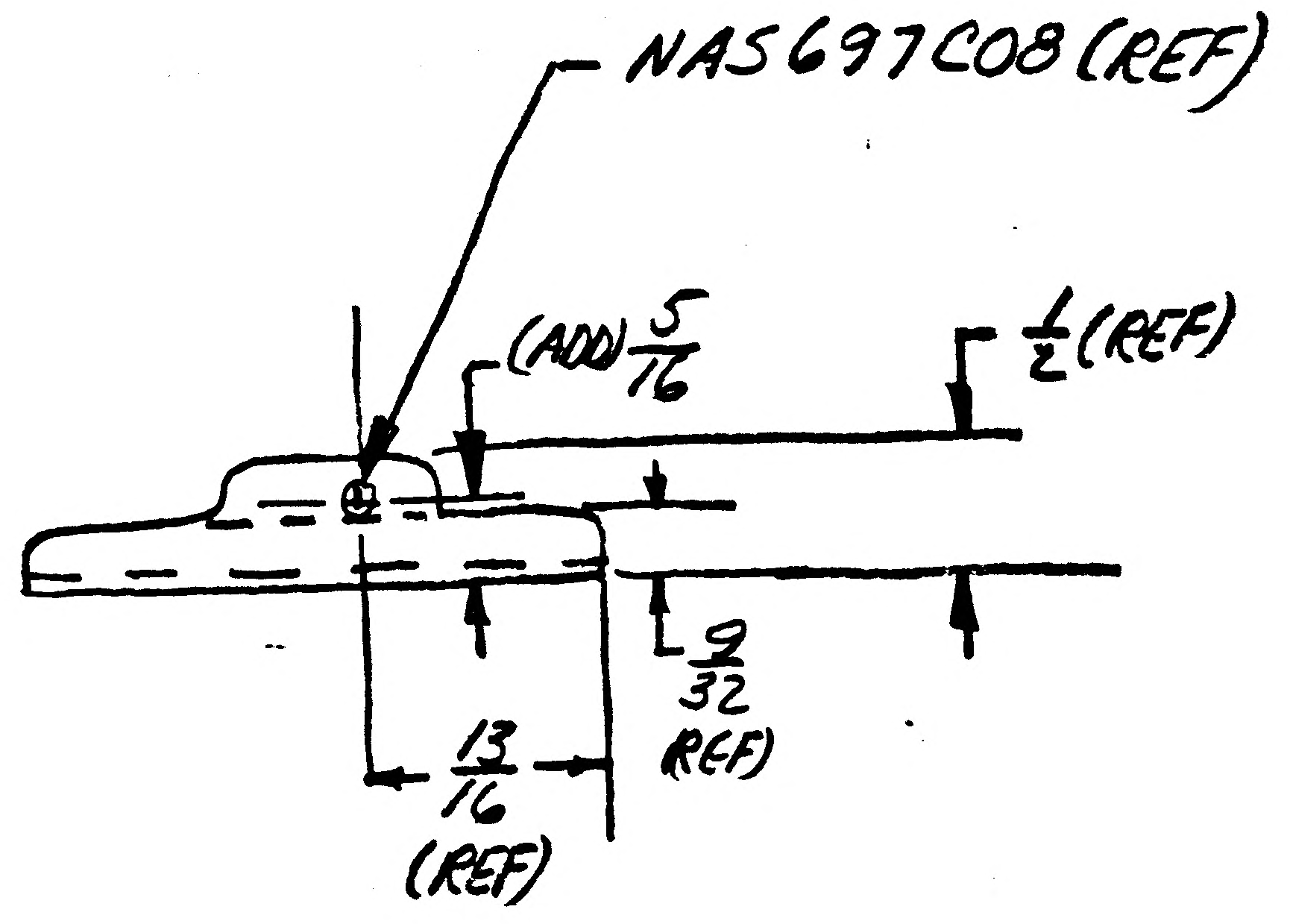
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18058 | EO NO. A1

CONTROL INFO NO. LEM-5-7897



REVISE -1 AS SHOWN

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐ ✓

REASON FOR EO: ADDED LOCATING DIM FOR NAS697C08

DESCRIPTION OF EO: ON-1 ADDED DIM 5/16

GAEC EO RELEASE: FR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK — | SCRAP —

APPROVED BY		YBY			WJM	EWB	RMC (EU)	
DATE	9/1	8/11/66	~	~	9/14	8/4/66	8-9	8-4-66
8-3-66	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	G&T

PRIORITY: C5

DRAWING TITLE: BRACKET-D.S.-SUPERCRITICAL He TANK SIM LINES-SUPPORT

DRAWING NO. LDW280-18058

EO NO. A1

ISSUED BY E.J. COMISKEY/LIAISON/ SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

LDW280-18062A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-16056	LM-14(44)	2
		THRU	
		LM-7(37)	
		LEM-6(36)	
		LEM-5(35)	
		LEM-4(34)	
LM	LDW280-16056	LEM-3(33)	2
PART NO. LDW280-18062-11		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-16056	LM-14(44)	1EA
		THRU	
		LM-7(37)	
		LEM-6(36)	
		LEM-5(35)	
		LEM-4(34)	
LM	LDW280-16056	LEM-3(33)	1EA
PART NO. LDW280-18062-13,-15,-17,-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A							
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REF INFO A		
		PRIM NO.	GE(OUI)	
LAST DASH NO. USED	-19	207	ME-1	A 4/4/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	P. WEISSLITZ	RELIABILITY	
LAYOUT BY	G. Kouky		
CHECKED BY			
GR. LEADER	9/1/66		
V.D.I.	9/1/		
STRUCTURE	9/2/	PROJ ENGR	R.M. Carbee 9-3
STRUCTURE	Hillerman 9/1	REL GROUP	9/15-6
WEIGHTS	9-12		

® GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE OXIDIZER BAL.
LINE SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18062 A
SCALE FULL NONE
SHEET 1.00 OF 4
①

ENG 77.1 12-65

C.D.R. 9-2-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN - INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED SH.3.00 N.C. LAST REV. N.C. 1-28-69 F.ROTH						
A	1	1.00,1.10							INC LEO280-328 ADDED SH1.10	LM-7 THRU LM-15			F.ROTH 1-28-69		
	2	1.00,1.10							INC EOA2	LM-3 THRU LM-15					
	3	1.00,1.10							INC EOA3	LM-6 THRU LM-8					
	4	1.00,1.10							INC LEO280-1219	LM-6 THRU LM-8					
	5	1.00,1.10						Ⓡ	INC LEO280-1238 BC	LM-15					

FOR CONTINUATION OF REVISIONS SEE SHEET ________

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18062	A
SCALE	NONE		SHEET 1.10

ENG 77.3 5-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18062-19	E	PLATE	COR.RES.STL SH.	MIL-S-6721	321 ANL	.050 x 3 1/2 x 3 3/4	NONE	NONE	
								-17	E	↕	↕	↕	↕	.050 x 3 1/4 x 3 3/4	NONE	NONE	
								-15	E	↕	↕	↕	↕	.050 x 2 7/8 x 4 3/8	NONE	NONE	
								-13	E	↕	↕	↕	↕	.050 x 2 1/4 x 3 1/4	NONE	NONE	
								LDW280-18062-11	E	PLATE	COR.RES.STL SH.	MIL-S-6721	321 ANL	.050 x 2 1/2 x 4 1/8	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

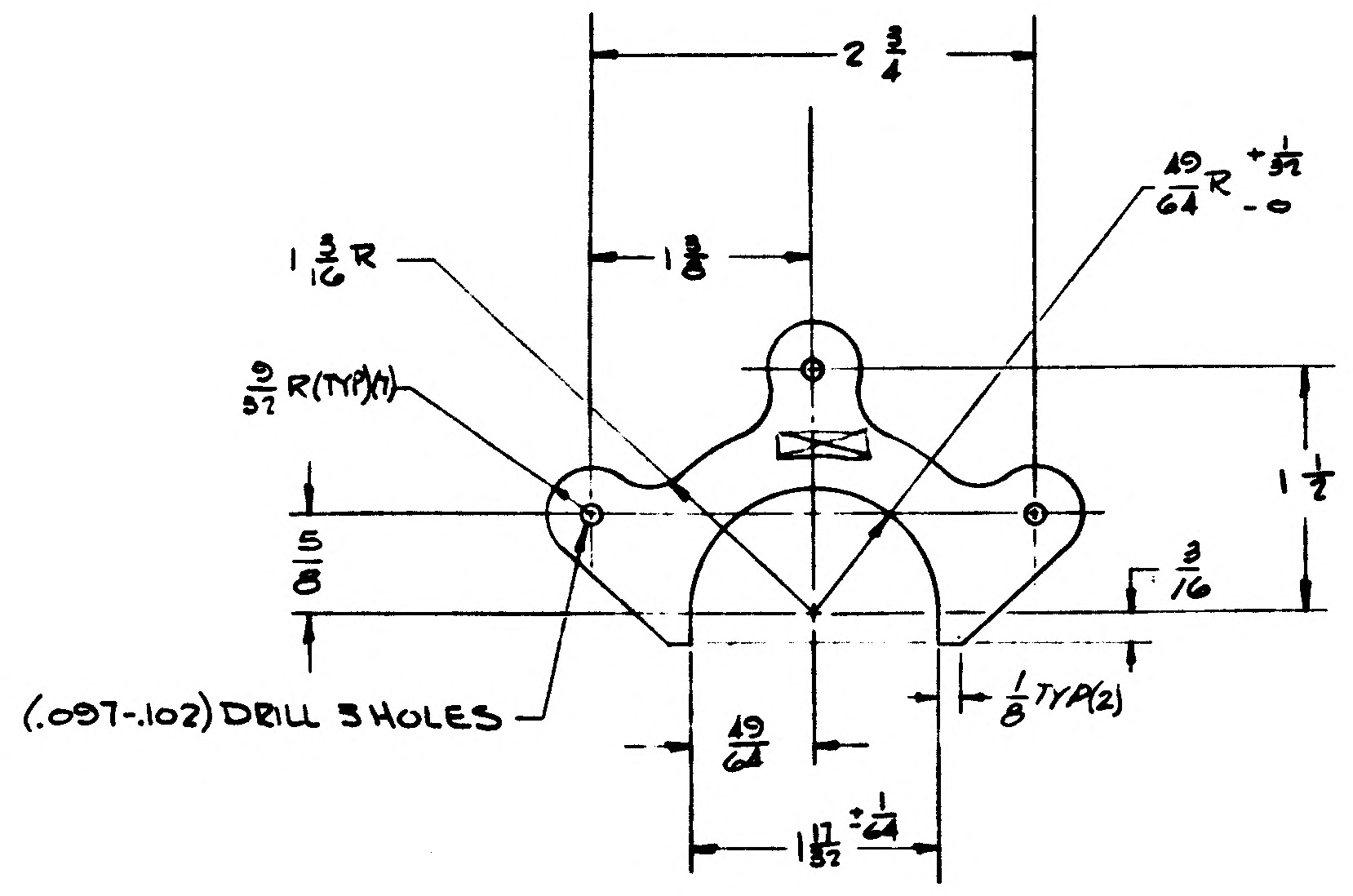
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18062
SCALE NONE
SHEET 2.00

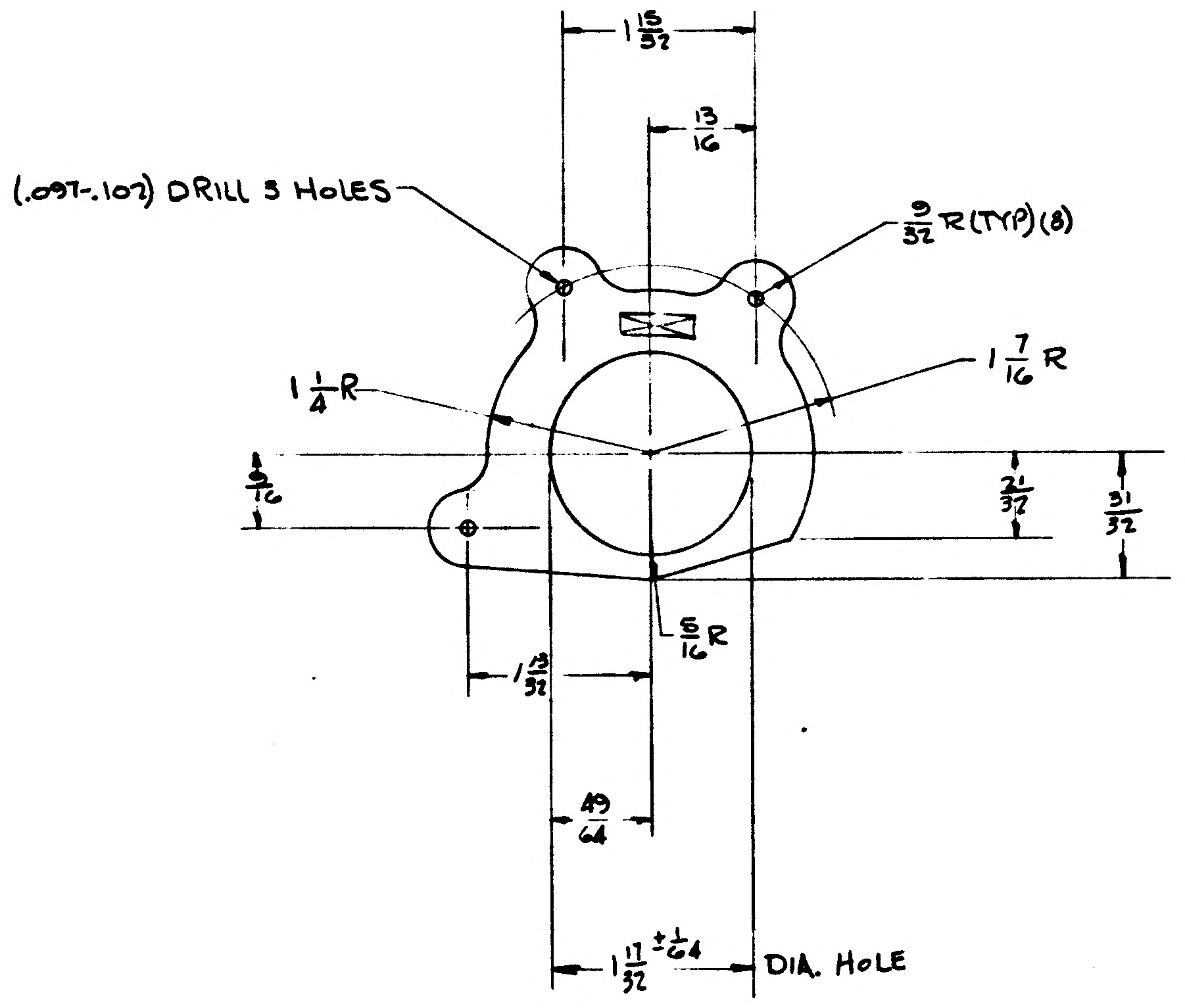
ENG 77.2 7-65

01

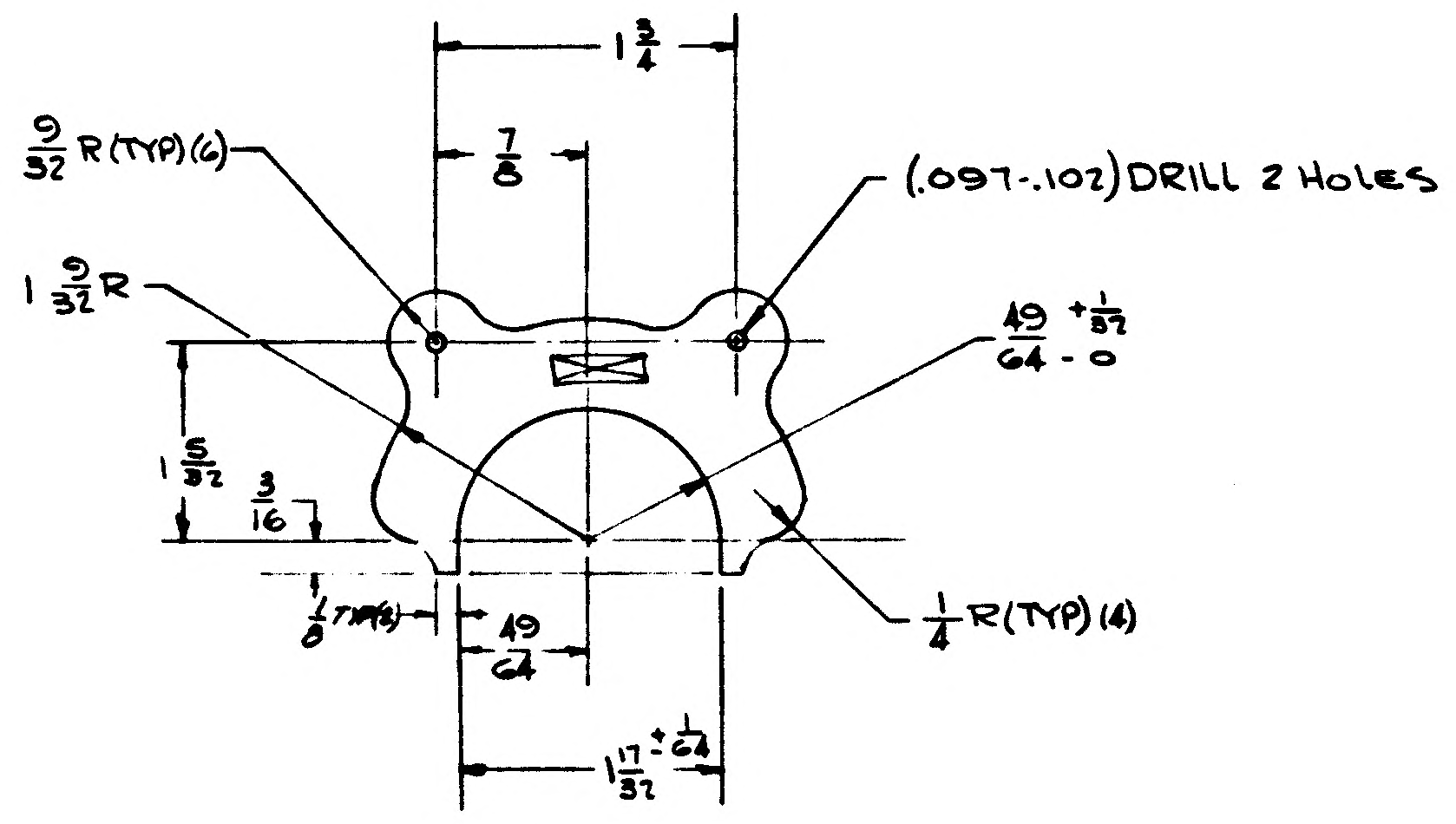
NAS 9-1100


2 3/4
1 3/8
1 3/16 R
49/64 R +1/32 -0
9/32 R (TYP)(7)
5/8
1 1/2
3/16
(.097-.102) DRILL 3 HOLES
1/8 TYP(2)
49/64
1 17/32 ±1/64

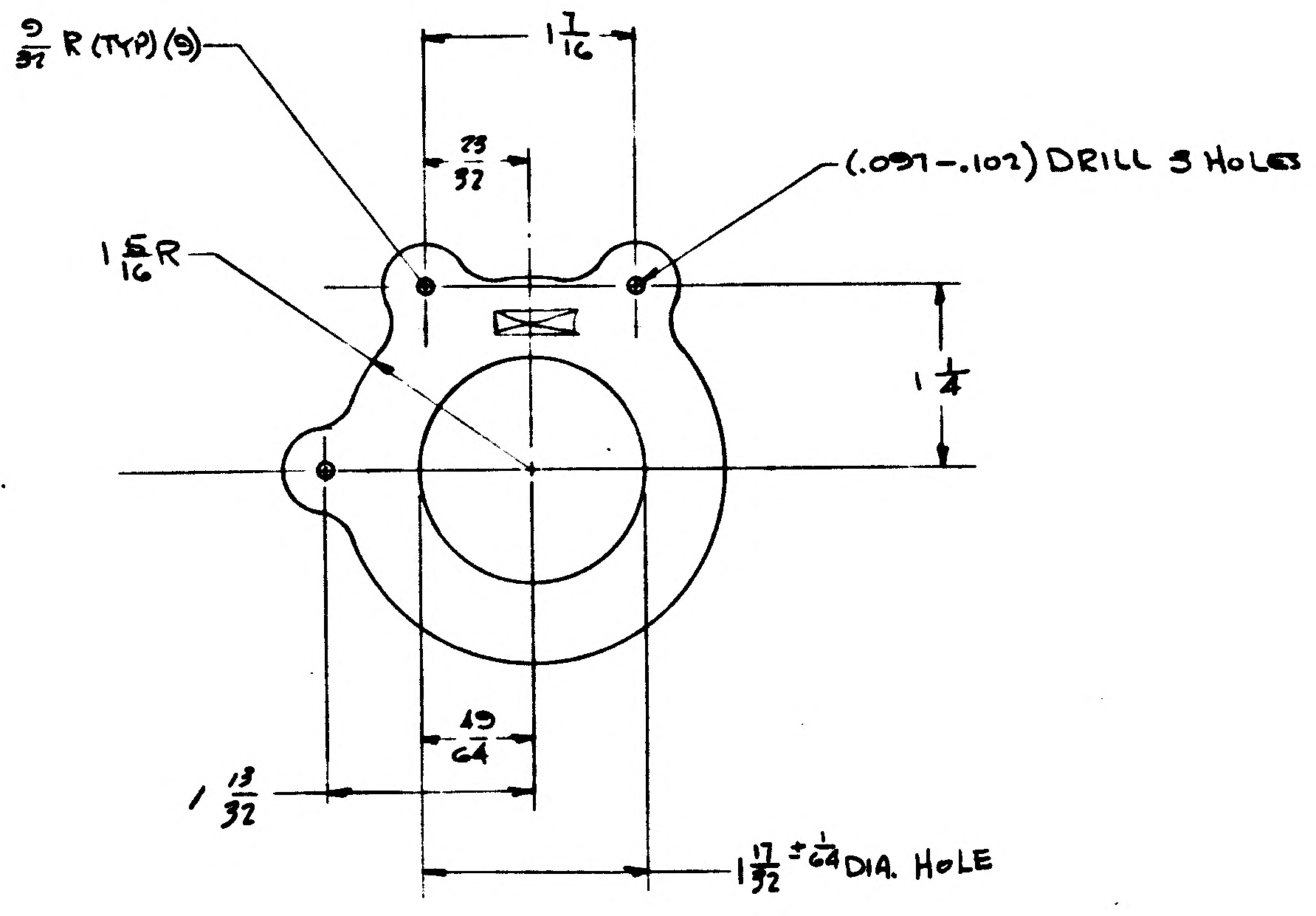
-11


1 15/32
13/16
(.097-.102) DRILL 3 HOLES
9/32 R (TYP)(8)
1 1/4 R
1 7/16 R
9/16
21/32
31/32
5/16 R
1 13/32
49/64
1 17/32 ±1/64
DIA. HOLE

-17

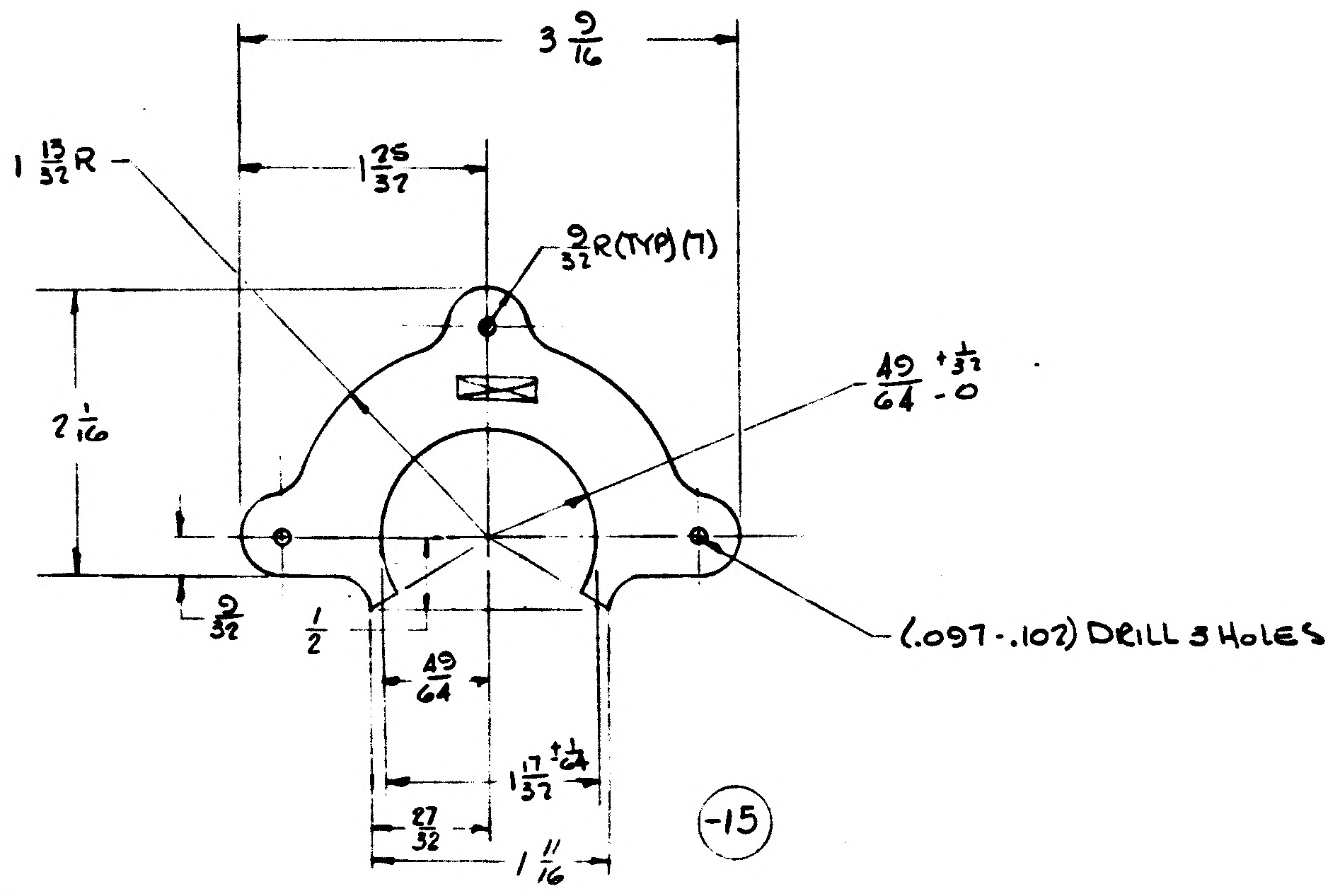

1 3/4
7/8
9/32 R (TYP)(6)
(.097-.102) DRILL 2 HOLES
1 9/32 R
49/64 +1/32 -0
1 5/32
3/16
1/8 TYP(2)
49/64
1/4 R (TYP)(4)
1 17/32 ±1/64

-13


9/32 R (TYP)(9)
1 7/16
23/32
(.097-.102) DRILL 3 HOLES
1 5/16 R
1 1/4
49/64
1 13/32
1 17/32 ±1/64 DIA. HOLE

-19

NOTES:
1. LAYOUT RELEASE-TO BE REDRAWN ON PRODUCTION FORMAT
2. NO TOOLING HOLES PERMITTED IN PART.


3 9/16
1 13/32 R
1 25/32
9/32 R (TYP)(7)
49/64 +1/32 -0
2 1/16
9/32
1/2
(.097-.102) DRILL 3 HOLES
49/64
1 17/32 ±1/64
27/32
1 11/16

-15

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √x DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-18062

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LEM	SIZE D	CODE IDENT NO. 26512	LDW280-18062	
MODEL OR END ITEM	SCALE FULL		SHEET	

ENG 753 6-64

01

NAS 9-1100

01
NAS 9-1100

ENG 22.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 328
CONTROL INFO NO. LDW280A1040

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS * THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9 (39), LEM-10(40), LEM-11(41), LEM-12 (42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER *	CHANGE NUMBER	TITLE
LDW280 -17926	A1	SEE DRAWING
-17927	B1	
-17929	B1	
-17932	A2	
-17938	B2	
-17941	B1	
-17943	A3	
-17948	A1	
-17949	A1	
-17950	A2	
-17958	B1	
-17959	A2	
-17962	B1	
-17966	B1	
-17970	B1	
-17973	A1	
-17977	A1	
-17981	A1	
-17984	B1	
-17985	A2	
-17989	A2	
-17992	B1	
-17997	A1	
-17998	C1	
-17999	A6	
-18035	A6	
-18036	A1	
-18038	A6	
-18046	A4	
-18050	A1	
-18051	A1	
-18062	A1	
-18063	A1	
-18065	B3	
LDW280 -18066	A1	SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: R 1921

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP: NOT REQ'D

APPROVED BY								
DATE	8/2/66				10/7/66			10/15/66
	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: NOTES

DRAWING NO.: LEO280

EO NO.

ISSUED BY M. GREY / J. STRAKOSCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER EMF-A

DWG. NO. LDW280-18062
EO NO. A2
CONTROL INFO NO. LDW280A-6232

IN M/B FOR -11, -13, -15, -17 & -19 REVISE N/A.

LDW280-16056 WAS LDW280-17388

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

2

REASON FOR EO: TO MAKE DRAWING AND N/A AGREE

DESCRIPTION OF EO: IN M/B FOR -11, -13, -15, -17 & -19
LDW280-16056 WAS LDW280-17388

(B) GAEC EO RELEASE: e JK 4/17/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 3(33)	
		THRU 15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT REQD SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY		—	—					
DATE	4/3/67			4/3/67	4/5/67		4/13	4/14/67
6								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE-D/S-OXID. BAL. LINE SUPPORT.	LDW280-18062	A2

ISSUED BY C. H. COHEN X1392 SECTION EQUIP LINES GROUP NO. 332 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18062	EO NO. A3
CONTROL INFO NO. LDW280B6204	

DESCRIPTION OF EO *

IN M/B FOR LM-6(36) THRU LM-8(38) ADD THE FOLLOWING:

LDW280-18062-11	N/A LDW280-16056	4 REQD
-13		2 REQD
-15		↕
-17	↕	
LDW280-18062 -19	N/A LDW280-16056	2 REQD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3552 PKG 2

REASON FOR EO: D/S PROPELLANT SWIP II TANK SUBSTITUTION

DESCRIPTION OF EO: NOTED *

GAEC EO RELEASE: (5) C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-6(36)	
		THRU	
		LM-8(38)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				JW				
DATE	11/8/68			11-8-68	11/8/68		11/8/68	11-9-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE – DESCENT STAGE LINES SUPPORT	LDW280-18062	A3

11-15
ISSUED BY TED DELNICKI X 86046 SECTION EQUIP LINES GROUP NO. 332 PL 25

01

NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 1219
CONTROL INFO NO. LDW280B6256	

TO THE FOLLOWING DRAWINGS, REVISE QUANTITIES AS SHOWN
LM-6 (36) THRU LM-8 (38)

DRAWING NO.	DASH NO.*	NEXT ASSY	NO. REQD**	DWG TITLE	CHANGE NO.
LDW280-16001	-7	LDW280-16057	1 WAS 2	TEE ASSY D/S PROPULSION SYSTEM	C3 ✓
-16001	-9	-16055	1 " 2		
-17876	-11	-16054	1 " 2	PLATE D/S PROPELLANT LINES SUPPORT	B2 ✓
-17876	-11	-16001	1 " 2		
-17876	-13	-16001	2 " 4		
-17876	-15	-16057	1 " 2		
-17876	-19	-16054	1 " 2		
-17876	-19	-16055	1 " 2		
-17876	-21	-16057	1 " 2		
-17876	-23	-16055	1 " 2		
-17876	-25	-16054	1 " 2		
-17992	-15	-16054	1 " 2	TEE D/S FUEL & OXIDIZER PROPELLANT LINES SUPPORT	B9 ✓
-17992	-19	-16057	1 " 2		
-17992	-21	-16054	1 " 2		
-17992	-21	-16055	1 " 2		
-17992	-23	-16057	1 " 2		
-18036	-13	-16055	1 " 2	PLATE D/S FUEL TANK PROPELLANT LINES SUPPORT	B7 ✓
-18062	-11	-16056	2 " 4	PLATE D/S OXIDIZER BALANCE LINE SUPPORT	A4 ✓
-18062	-13	-16056	1 " 2		
-18062	-15	-16056	1 " 2		
-18062	-17	-16056	1 " 2		
-18062	-19	-16056	1 " 2		
M16302	-11	-16097	1 " 2	FLANGE D/S ORIFICE	B4
M16302	-11	-16098	1 " 2		
M16303	-11	-16055	1 " 2	FLANGE ASSY D/S ORIFICE	B2
LDW280 M16303	-11	LDW280 -16057	1 " 2		

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3552 PKG 3		(5)
REASON FOR EO	D/S PROPELLANT SWIP II TANK SUBSTITUTION		DESCRIPTION OF EO	ON DASH NO* REVISED LM-6, LM-7 & LM-8 REQUIREMENTS **				GAEC C EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36)	
		THRU	
		LM-8(38)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	11/14/68			11-13-68	11/14/68		11/13/68	11/14/68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED ABOVE	LEO 280	1219

11-19
ISSUED BY TED DELNICKI X86046 SECTION EQUIP LINES GROUP NO. 332 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1238
CONTROL INFO NO. LDW280B6441

IN MODEL BLOCK REMOVE LM-15 (45) EFFECTIVITY FROM THE FOLLOWING DWGS. AND THEIR RESPECTIVE DASH NUMBERS.

DRAWING NUMBER	DASH No.'S *	CHANGE No.
LDW280-54608	-25	H9
LDW280-54981	-11-1	F3
-56608	-1	A7
-54351	-3	C1
-18332	-11,	B1
-18062	-11, -13, -15, -17, & -19.	A5
-18036	-13	B8
-17848	-11 & -15	B2
-17890	-11	B5
-17876	-11, -13, -15, -19, -21, -23 & -25	B3
-17992	-15, -19, -21, & -23	B10
-17926	-15	B6
-17914	-11, & -15	B5
-17909	-11, -13, & -15	B5
-16054	-1	D7
-16055	-3	D7
-16056	-1	D8
-16057	-3	D7
-16097	-1	A6
-16098	-1	A5
-16026	-1	B4
-16001	-7 & -9	C4
-16002	-1	B7
-16046	-15, -17, -19, -21, & -23	C5
P17987	-1 & -3	A5
P16216	-1	A5
P16230	-11	A4
P16246	-1	B2
P16218	-11 & -13	B4
P11598	-11	B1
M17351	-1	B9
M17350	-1	C7
M16116	-1	A4
M16303	-11	B3
M16110	-1	A3
M16302	-11	B7
LDW280 M11158	-3-1	B4
LDW280-11534	-17, & -19	B4

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 5

REASON FOR EO: DELETION OF REQUIREMENTS FOR LM-15 (45).

DESCRIPTION OF EO: REMOVED LM-15 (45) EFFECTIVITY FROM DASH *.

GAEC EO RELEASE: JK 12/12/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓
APPROVED BY
DATE: 12/5/68 VDI
SUPPORT | RELIAB. GROUP | GROUP LEADER 12/5/68 | STRESS GROUP 12/6/68 | LIAISON ENGRG | PROJ ENGRG 12/6/68 | GOV 12/12/68

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1238

1/2/69
ISSUED BY W. LEIFER/J. WOLF 12-4-68 X1153 SECTION EQUIP. LINES GROUP NO. 332 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1644
CONTROL INFO NO. LDW280B3306

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40)
ADD LTA-11 (23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANITY.

DRAWING № *	TITLE	CHANGE №
LDW280-17890	SEE DWG	C1
973		B3
997		B2
18036		C1
062		B1
—		
—		
784		A2
810		B1
LDW280-18858	SEE DWG	B1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 91 & 92 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-27-69; JK 8/28/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓; RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK, SCRAP)

APPROVED BY	PSF				N			
DATE	7-30-69			7/31/69	8-2-69			8/7/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1644

9-26-69
ISSUED BY G. HANSMANN X87222 (ZF) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1725
CONTROL INFO NO. LDW280B8988

IN MODEL BLOCK, REMOVE EFFECTIVITY LM-10 (40) THRU LM-14(44) FROM NEXT ASSY ✻ ✻ ON THE FOLLOWING DRAWING DASH NUMBERS✻:

DRAWING NO.	DASH NO.✻	NEXT ASSY ✻✻	DRAWING TITLE	CHANGE NO.
✓LDW280-16046	-15	LDW280-16054 LDW280-16056	FITTING UNION	D1
✓LDW280-16054	-1	LDW280-56608	LINE ASSY (WELD) FUEL BALANCE LINE/	E1
✓LDW280-16056	-1	LDW280-56608	LINES ASSY (WELD) D/S OXIDIZER BALANCE LINE	E2
✓LDW280-17876	-11, -19, -25	LDW280-16054	PLATE D/S PROPELLANT LINES SUPPORT	B5
✓LDW280-17992	-15, -21	LDW280-16054	PLATE D/S-FUEL & OX PROPELLANT LINES SUPPORT	C3
✓LDW280-18062	-11, -13, -15 -17, -19	LDW280-16056	PLATE DESCENT STAGE OXIDIZER BALANCE LINE SUPPORT	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 8

REASON FOR EO: REMOVAL OF DPS PROPELLANT BALANCE LINES (FUEL & OXIDIZER)

DESCRIPTION OF EO: IN M/B REMOVED EFF LM-10(40) THRU LM-14 (44) FROM NEXTASSY ✻✻ ON DASH ✻

(5) Ⓟ GAEC EO RELEASE 10-10-69 JK 10/11/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	10/8/69			10-7-69			10/11/69	10-11-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOV~~

PRIORITY C

DRAWING TITLE NOTED ABOVE

DRAWING NO. LEO 280

EO NO. 1725

10 17 69

ISSUED BY J. CIEZKOWSKI X86046 SECTION V.D.I. (EQUIP. LINES) GROUP NO. 332 PL 25

0 1

NAS 9-1100

LDW280-18063

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-17388	LEM-6(36)	1
↕	↕	LEM-5(35)	1
		LEM-4(34)	1
LEM	LDW280-17388	LEM-3(33)	1

PART NO. LDW280-18063-11, -13

GAEC SCH NO. 50-1
55-18

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00							
REV											
SHEET											
REV											
SHEET											
REV											

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO

PRIM NO. CE(601)

207 MP-9-6-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES

± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

DRAWN BY WEISSLITZ 9-1-66

RELIABILITY

LAYOUT BY G. KOURY

CHECKED BY

GR. LDR. 9/1/66

V. D. I. 9/1

STRUCTURE K.C. 9/2

STRUCTURE 9/2

WEIGHTS 9-12

PROJ ENGR R.M. Carbee 9-3

REL GROUP 9-15-66

® GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE OX TANK
BALANCE LINE SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18063

SCALE FULL NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

C.D.R. 9-2-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18063-13	E	PLATE	COR. RES. STL. SH.	MIL-S-6721	321 ANL	.050 x 3 x 3 7/8	NONE	NONE	
								LDW280-18063-11	E	PLATE	COR. RES. STL. SH.	MIL-S-6721	321 ANL	.050 x 3 x 4 1/8	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18063

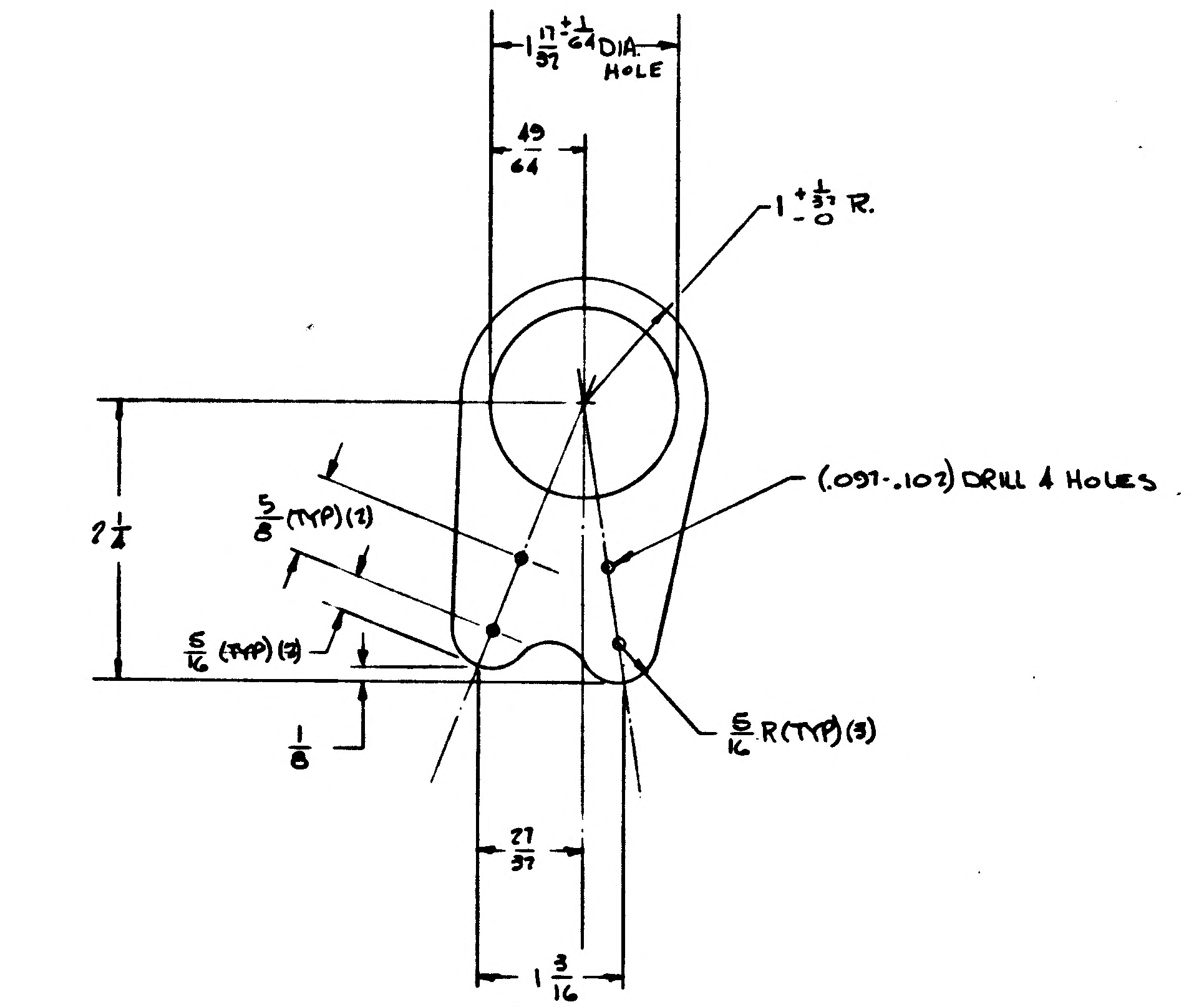
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

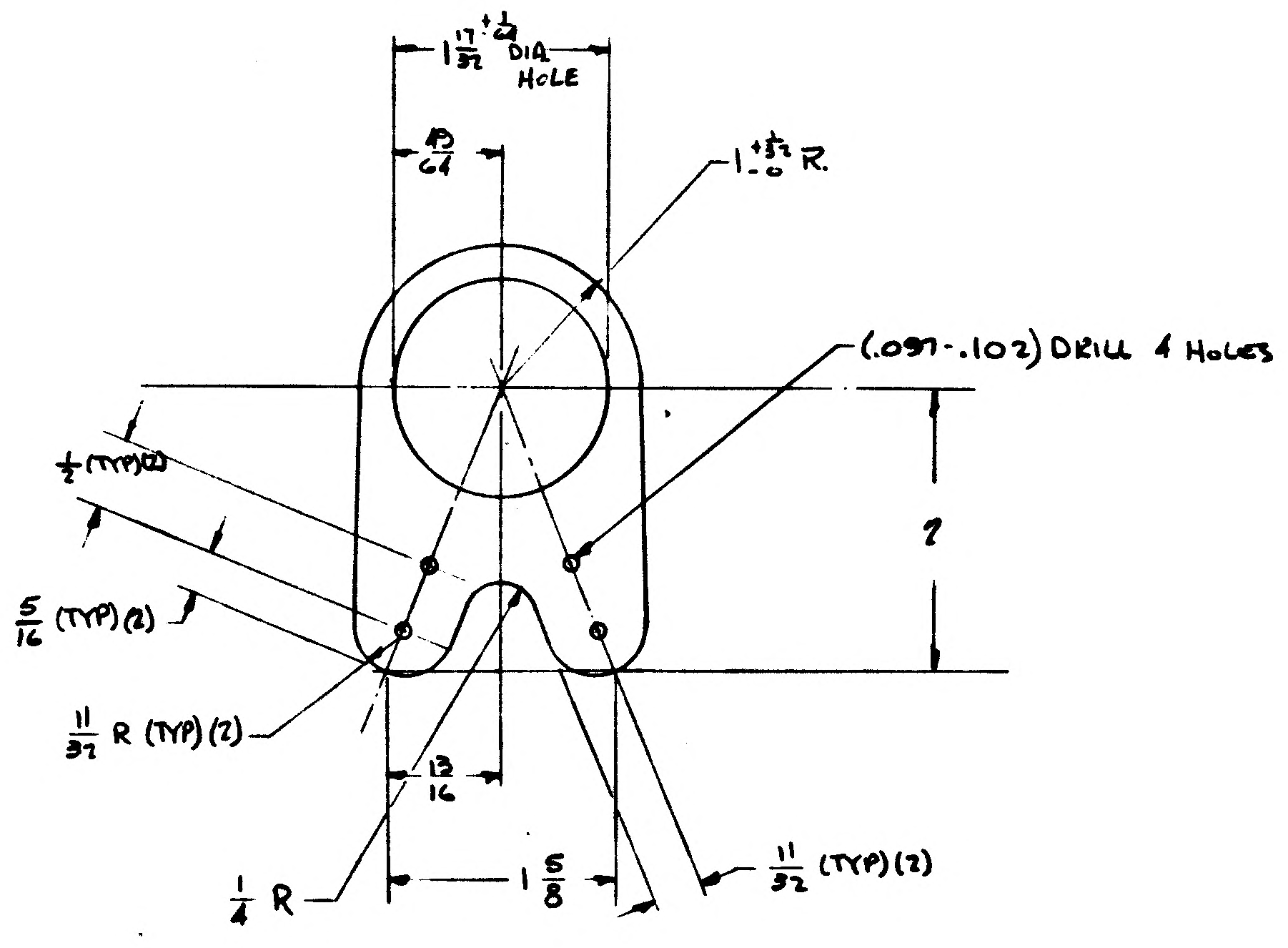
NAS 9-1100

LDW280-18063



$1\frac{17}{32}{}^{+\frac{1}{64}}$ DIA. HOLE
$\frac{49}{64}$
$1{}^{+\frac{1}{32}}_{-0}$ R.
(.097-.102) DRILL 4 HOLES
$2\frac{1}{4}$
$\frac{5}{8}$ (TYP)(2)
$\frac{5}{16}$ (TYP)(2)
$\frac{1}{8}$
$\frac{5}{16}$ R (TYP)(3)
$\frac{27}{32}$
$1\frac{3}{16}$

-11



$1\frac{17}{32}{}^{+\frac{1}{64}}$ DIA. HOLE
$\frac{49}{64}$
$1{}^{+\frac{1}{32}}_{-0}$ R.
(.097-.102) DRILL 4 HOLES
$\frac{1}{2}$ (TYP)(2)
2
$\frac{5}{16}$ (TYP)(2)
$\frac{11}{32}$ R (TYP)(2)
$\frac{13}{16}$
$\frac{1}{4}$ R
$1\frac{5}{8}$
$\frac{11}{32}$ (TYP)(2)

-13

NOTES:
1. LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.
2. NO TOOLING HOLES PERMITTED IN PART.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-18063

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LEM	SIZE D	CODE IDENT NO. 26512	LDW280-18063	
MODEL OR END ITEM	SCALE FULL		SHEET [illegible]	

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 22.2 REV 3-63

DWG. NO. LE0280
EO NO. 328
CONTROL INFO NO. LDW280 A 1040

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45) QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER *	CHANGE NUMBER	TITLE
LDW280 -17926	A1	SEE DRAWING
-17927	B1	
-17929	B1	
-17932	A2	
-17938	B2	
-17941	B1	
-17943	A3	
-17948	A1	
-17949	A1	
-17950	A2	
-17958	B1	
-17959	A2	
-17962	B1	
-17966	B1	
-17970	B1	
-17973	A1	
-17977	A1	
-17981	A1	
-17984	B1	
-17985	A2	
-17989	A2	
-17992	B1	
-17997	A1	
-17998	C1	
-17999	A6	
-18035	A6	
-18036	A1	
-18038	A6	
-18046	A4	
-18050	A1	
-18051	A1	
-18062	A1	
-18063	A1	
-18065	B3	
LDW280 -18066	A1	SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: 4 LE 1921

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D
APPROVED BY / DATE: V.D.I. SUPPORT RELIAB. GROUP GROUP LEADER STRESS GROUP 10/7/66 LIAISON ENGRG PROJ ENGRG 10/15/66
PRIORITY: C
DRAWING TITLE: NOTES
DRAWING NO.: LE 280
EO NO.

ISSUED BY M. GREY / J. STRAKOSCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

* EMF-A

DWG. NO.	LDW280-18063	EO NO.	A2
CONTROL INFO NO.	LDW280A-6233		

IN M/B FOR -11, -13 REVISE N/A.

LDW280-16056 WAS LDW280-17388

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		2

REASON FOR EO: TO MAKE DRAWING AND N/A AGREE

DESCRIPTION OF EO: IN M/B FOR -11, -13 LDW280-16056 WAS LDW280-17388

GAEC EO RELEASE: C JK 4/17/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 3(33) THRU 15(45)	

DRAWING CHANGE REQD REVISE DWG	RECORD EO	DISPOSITION OF PARTS REWORK	SCRAP
✓		NOT	REQD

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
	JW	—	—	JW	NJM		JM	
DATE	4/3/67			4/5/67	4/5/67		4/3	4-14-67
6								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE-D/S ~ OXID. BAL. LINE SUP.	LDW280-18063	A2

ISSUED BY C.H. COHEN X1392 SECTION EQUIP LINES GROUP NO. 332 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG NO. LEO-280	EO NO. 700
CONTROL INFO NO. LDW280A-8983	

ADD EFFECTIVITY "TEST E.O. (75)" TO THE FOLLOWING DWGS:

54EA	LDW 280M 17488-1	SEE DWG	B2
2	LDW 280-17382-11		A2
2	-13		
4	-15		
1	LDW 280-17383-11		B1
1	-13		
1	-15		
1	-17		
4	LDW 280-17415-11		B2
2	-13		
2	-15		
3	LDW 280-17766-11		B2
2	-13		
6	-15		
2	LDW 280-17416-15		B3
1	-17		
1	-19		
2	LDW280-17380-15		B2
2	-17		
3	LDW 280-17765-15		B2
1	-17		
2	-19		
1	LDW 280-17767-15		B2
1	LDW 280-17767-17		
2	LDW280-17388-459 DSO-24	SEE DWG	H7
1	-455 DSO-24		
1	-240 DSF-24		
2	-224 DSF-24		
1	-239 DSO-28		
1	-238 DSO-28		
2	-119 DSO-28		
1	-111 DSO-28		
2	-109 DSF-24		
1 EA	LDW280-17388-108 DSF-24		

			E.O.
1 EA	LDW280M17689-3	SEE DWG	B2
1	LDW280M17560-1		B6
1	LDW280M17561-1		B3
3	LDW280M17562-1		B4
3	LDW280M17563-3		B3
2	LDW280M17558-1		B4
2	LDW280M17559-1		B4
2	LDW280M17556-1		C2
2	LDW280M17557-1		B2
1	LDW280-17992-11		B3
2	-13		
2	LDW280-18063-11		A3
1	-13		
1	LDW280-18036-11		B1
1	-13		
2	-15		
1	-17		
2	-19		
2	-21		
10	LDW280M17655-3		B2
18	-1		
3	LDW280M16126-11		A1
5	LDW280M17352-1		B5
6 EA	LDW280M17353-1	SEE DWG	B2

"ABOVE HDWE SHOWN ON LSK 270-1052
COVER TEST ASSY."

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐	LCD-2055

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE ADDITIONAL EFFECTIVITY	ADDED TEST(75) FOR ALL DASH NUMBERS NOTED	JK 9/5/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TEST (75)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NONE	REQD
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				K3			WRB	
DATE	8/29/67			8/29/67	8/30/67		8/31/67	9-5-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO-280
EO NO.: 700

9/5
ISSUED BY B. J. ZANG X1472 29AUG'67 SECTION PROPULSION DESIGN GROUP NO. 345 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW 280-18063		EO NO. A4
CONTROL INFO NO. LDW 280B/268		

IN M/B FOR -11 & -13 ASSY

DELETE LDW 280-16056 LM6(36) THRU LM 15(45) 1 EA

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2381 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ONE PIECE WELDED TANKS	IN M/B FOR -11 & -13 ASSY DELETED LDW-280-16056 LM6 THRU LM15 EFF	JC 1/22/68

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			✓	DATE	1/11/68			1-15-68	1/19/68		1/15/68	1-23-68
LM		LM 6(36) THRU		REVISE DWG	RECORD EO	REWORK	SCRAP	B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
		LM15(45														

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE	LDW 280-18063	A4

2/3/68
ISSUED BY D. JACOBSON X1153 SECTION EQUIP LINES (VDI) GROUP NO. 332 PL25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280 | EO NO. 878
CONTROL INFO NO. LDW280B2219

IN M/B TO PART NOS.* LISTED BELOW, EFF DVT(70), ADD N/A AS NOTED **, AND ADD QUANTITIES AS NOTED ‡

DWG/PART NO. *	TITLE	* * NEXT ASSY	ADD QTY‡ REQD	EO NO.
LDW 280 M16174 -11	FLANGE	LSK280-11123	1	A3
M16199 -11	FLANGE		1	A2
M17655 -1	RETAINER		1	B4
M17655 -3	RETAINER		1	
-17388-119D50-28	TUBE		1	L5
-17388-459D50-24	TUBE		1	
-18036-21	SUPPORT		1	B3
LDW280 -18063-11	SUPPORT		1	A5
LDW280-53622-3	SUPPORT INSTL	LSK280-11123	1	B4
-17765 -15	STRAP	LDW280-53622	1	B5
-17765 -19	STRAP		1	
-17766-11	CHANNEL		1	B4
-17766 -13			1	
-17766-15			2	
M17488-1	WASHER		6	B4
M17562-1	FITTING		1	B6
LDW280 M17563-3	FITTING	LDW280-53622	1	B5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2715

(5)

REASON FOR EO: TO CREATE TEST ARTICLE FOR LTP 905-21001

DESCRIPTION OF EO: ON - * ADD N/A **, & QTY REQD ‡ FOR DVT(70)

GAEC EO RELEASE: JK 3/2/68

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK | SCRAP)

APPROVED BY			RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	2/28/68	3-1-68		2/28/68	2/29		2/28/68	3/2/68
-	VDI	E, ULES						

PRIORITY: C

DRAWING TITLE: SEE ABOVE *

DRAWING NO.: LEO 280

EO NO. 878

3/1/68
ISSUED BY A. RICHER X1332 / P. THORDXEN X1153 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

DWG NO	DASH NO*	NEXT ASSY	NO. REQD	CHG NO
LDW280-17992	-13	LDW280-16057	1	B6
LDW280M16175	-11	-16054	1	A3
M16175	-11	-16055	1	
M17655	-1	-16054	4	B5
M17655	-1	-16055	4	
M17655	-1	-16056	4	
M17655	-3	-16057	4	
M16199	-11	-16056	2	A2
M16174	-11	-16057	2	A4
M16302	-11	-16052	1	B3
M16302	-11	-16050	1	
M17351	-1	-16051	1	B6
LDW280M17350	-1	-16053	1	C4
LDW280-16002	-1	-16051	1	B3
-16002	-1	-16053	1	
-17909	-11	-16052	1	B3
-17909	-13	-16052	1	
-17909	-15	-16052	1	
-17914	-11	-16053	1	B3
-17914	-15	-16051	1	
LDW280-17926	-15	LDW280-16050	1	B4

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LED 280
EO NO. 976
CONTROL INFO NO. LDW280B3468

TO THE FOLLOWING DRAWINGS ADD EFF LM6(36) & NEXT ASSY AS SHOWN IN MODEL BLOCK

DWG NO	DASH NO*	NEXT ASSY	NO. REQD	CHG NO
LDW280-16056	-3	LDW280-54608	1	C1
-16057	-7		1	D1
-16054	-3		1	D1
-16055	-7		1	D1
-16052	-7		1	D1
-16053	-11		1	C4
-16050	-13		1	D3
LDW280-16051	-11		1	C4
LDW280M16193	-11		4	A10
M16193	-13		4	
M16176	-11		4	A5
M16177	-11		4	A3
M16178	-11		2	A5
LDW280 M16179	-11		2	A3
LDW270M10065	-11		2	A5
LDW270M10066	-13		2	A6
LDW280-16046	-35	LDW280-54608	2	B10
-16046	-19	LDW280-16053	2	
-16046	-19	-16051	2	
-16046	-19	-16050	2	
-18063	-11	-16056	1	A6
-18063	-13	-16056	1	
-18036	-11	-16055	1	B4
-18036	-15	-16055	1	
-18036	-17	-16054	1	
-18036	-19	-16054	1	
LDW280-18036	-21	LDW280-16057	1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3127 PNG 5 ITEM 17-25 (51)

REASON FOR EO: ALT. INSTL FOR SWIP II TANKS

DESCRIPTION OF EO: ON DASH NO * ADDED LM6 REQMTS

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM6 (36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP

APPROVED BY / DATE: 5/16/68 · GROUP LEADER 5/16/68 · STRESS GROUP 5/15/68 · PROJ ENGRG 5/15/68 · 5-24-68

B VDI SUPPORT RELIAB. GROUP GROUP LEADER STRESS GROUP LIAISON ENGRG PROJ ENGRG

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO. LEO 280
EO NO. 976

ISSUED BY 5/15/68 V. Bohun X1392 SECTION Equip Lines (VDI) GROUP NO. 332 PL. 25

01 NAS 9-1100

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1050
CONTROL INFO NO. LDW280B4418

THIS LEO CANCELS CHANGES LISTED ON LEO 280-976
FOR THE FOLLOWING DRAWINGS

DWG NO.	DASH NO*		CANCELED CHG NO	CANCELING CHG NO
LDW280M17655	-1		B5	B6 ✓
M17655	-3			
M16199	-11		A3	A5 ✓
M16174	-11		A4	A5 ✓
M16302	-11		B3	B4 ✓
M17351	-1		B6	B7 ✓
M17350	-1		C4	C5 ✓
-16002	-1		B3	B5 ✓
-17909	-11		B3	B4 ✓
-17909	-13			
-17909	-15			
-17914	-11		B3	B4 ✓
-17914	-15			
LDW280-17926	-15		B4	B5 ✓
LDW270M10065	-11		A5	A6 ✓
LDW270M10066	-13		A6	A7 ✓

DWG NO.	DASH NO*		CANCELED CHG NO	CANCELING CHG NO
LDW280-16056	-3		D1	D3 ✓
-16057	-7		D1	D2 ✓
-16054	-3		D1	D2 ✓
-16055	-7		D1	D2 ✓
-16052	-7		D1	D2 ✓
-16053	-11		C4	C5 ✓
-16050	-13		D3	D4 ✓
-16051	-11		C4	C5 ✓
M16176	-11		A5	A6 ✓
M16177	-11		A3	A4 ✓
M16178	-11		A5	A6 ✓
M16179	-11		A3	A4 ✓
18063	-11		A6	A7 ✓
18063	-13			
18036	-11		B4	B5
18036	-15			
18036	-17			
18036	-19			
18036	-21			
17992	-13		B6	B7
LDW280M16175	-11		A3	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3127

REASON FOR EO: REVISED B/M FOR SWIP II TANKS

DESCRIPTION OF EO: CANCELS EO (NOTED) CHG ON LEO 280-976

GAEC EO RELEASE: (5) 1C JA 7/18/

MODEL: LM
EFFECTIVITY: PROCURING ACTIVITY NO.: | GAEC UNIT NO.: LM 6 (36) | SUB CONTR UNIT NO.:

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY	JaP			JW	W/H		JaP	Jm
DATE	7/11/68			7-9-68	7/15/68		7/15/68	7/17/68
B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 1050

7/16 ISSUED BY J. Bohun X1392 SECTION Equip Lines (VDI) GROUP NO. 332 PL 25/LM

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LED 280	EO NO. 1207
CONTROL INFO NO. LDW280B 6185	

TO THE FOLLOWING DWG'S ADD EFF LM6(36), LM7(37) & LM8(38) NEXT ASSY **, REQD/VEH ***

DRAWING NO.	DASH NO*	NEXT ASSY**	*** NO. REQD	CHG NO.
✓ LDW280-16056	-3	LDW280-54608	1	D4 ✓
✓ -16057	-7		1	D3 ✓
✓ -16054	-3		1	D3 ✓
✓ LDW280-16055	-7		1	D3 ✓
✓ LDW280M 16193	-11		4	B3 ✓
M 16193	-13		4	
✓ M16176	-11		4	A7 ✓
✓ M16177	-11		4	A5 ✓
✓ M16178	-11		2	A7 ✓
✓ LDW280 M 16179	-11		2	A5 ✓
✓ LDW270M10065	-11		2	A7 ✓
✓ LDW270M10066	-13	LDW280-54608	2	A8 ✓
LDW280-18063	-11	LDW280-16056	1	A8 ✓
-18063	-13	-16056	1	
✓ M16175	-11	-16054	1	A5
✓ M16175	-11	-16055	1	
✓ M17655	-1	-16054	4	B7
M17655	-1	-16055	4	
M17655	-1	-16056	4	
M17655	-3	-16057	4	
✓ M16199	-11	-16056	2	A6
✓ LDW280 M16174	-11	LDW280-16057	2	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3552 PKG 2								(5)
REASON FOR EO: D/S PROPELLANT SWIP II TANK SUBSTITUTION				DESCRIPTION OF EO: ON DASH NO * ADDED LM6, LM7, LM-8 REQMTS N/A **, REQD/VEH ***									GAEC EO RELEASE: JC 11/9/68
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		NOT	REQD	DATE	11/8/68				
LM		LM6(36)		REVISE DWG	RECORD EO	REWORK	SCRAP		V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER JW 11-8-68	STRESS GROUP 11/8/68
		LM7(37)		PRIORITY: C	DRAWING TITLE: NOTED ABOVE							DRAWING NO.: LEO 280	
		LM8(38)											

LIAISON ENGRG	PROJ ENGRG 11/8/68	~~CONT~~ 11/9/68		EO NO. 1207

ISSUED BY 11-15 JOHN BOHUN X86046 SECTION EQUIP LINES GROUP NO. 332 PL 25

DRAWING NO.	DASH NO*	NEXT ASSY.	NO. REQD	CHG. NO.
✓ LDW280-53622	-3	LDW280-54608	1	C5
✓ -18036	-11	-16055	1	B9
	-15	-16055	1	
	-17	-16054	1	
	-19	-16054	1	
18036	-21	-16057	1	
✓ -17992	-13	-16057	1	C1
✓ -16097	-1	-54608	1	B1
✓ LDW280-16098	-1	-54608	1	A6
✓ LDW280M15564	-11	-54608	14	B5
✓ LDW280-54608	-27	LDW280-54508	1	J4

DWG 22.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1278
CONTROL INFO NO. LDW280B6977		

TO THE FOLLOWING DWG'S ADD EFF. LM9 (39) NEXT ASSY AS SHOWN IN MODEL BLOCK

DRAWING NO.	DASH NO*	NEXT ASSY.	NO. REQD	CHG. NO.
✓ LDW280-16056	-3	LDW280-54608	1	D10
✓ -16057	-7		1	D9
✓ -16054	-3		1	D9
✓ -16055	-7	-54608	1	D9
✓ -18063	-11	-16056	1	A9
LDW280-18063	-13	-16056	1	
LDW280M16193	-11	-54608	4	B4
M16193	-13		4	
M16176	-11		4	A8
M16177	-11		4	A6
M16178	-11		2	A8
M16179	-11	-54608	2	A6
M16175	-11	-16054	2	A6
M16175	-11	-16055	2	
M17655	-1	-16054	4	B8
M17655	-1	-16055	4	
M17655	-1	-16056	4	
M17655	-3	-16057	4	
M16199	-11	-16056	2	A7
M16174	-11	-16057	2	A7
M15565	-15	-54608	1	C3
M15565	-16		1	
M15566	-15		1	A9
LDW280 M15566	-16		1	
LDW270M10065	-11		2	A8
LDW270M10066	-13		2	A9
LDW280-23619	-9		1	D5
LDW280-23620	-11		1	E1
LDW280-53621	-3	LDW280-54608	1	B9

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD3552 PKG 6 ECP-A098 CCA1670 (S)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
D/S PROPELLANT SWIP II TANK SUBSTITUTION	ON DASH NO * ADDED LM9(39) REQMTS	7-1-69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM9(39)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY									
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	2/3/69	2/3/69			2/3/69	2/3/69		2/3/69	2/3/69
✓		NOT	REQD		VD	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1278

2-4-69 ISSUED BY J. Bohun x86046 SECTION Equip Lines (VDI) GROUP NO. 332 PL 35

01 NAS 9-1100

LDW280-18064 A

PART NO. LDW280-18064-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23712	LM-15(45)	8
		LM-14(44)	8
		LM-13(43)	8
		LM-12(42)	8
		LM-11(41)	8
		LM-10(40)	8
		LM-9(39)	8
		LM-8(38)	8
		LM-7(37)	8
		LM-6(36)	8
		LM-5(35)	8
		LM-4(34)	8
		LM-3(33)	8
		LM-2(32)	8
LM	LDW280-23712	LM-1(31)	8

GAEC SCH NO. 52-0

PART NO. LDW280-18064-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54527	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
	LDW280-54527	LM-4(34)	1
	LDW280-23527	LM-3(33)	1
LM	LDW280-23527	LM-2(32)	1

GAEC SCH NO. 51-3

PART NO. LDW280-18064-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52791	LM-3(33)	1
	LDW280-52791	LM-2(32)	1
	LDW280-28791	LM-1(31)	1
	LDW280-28524	LM-1(31)	1
	LDW280-25527	LM-1(31)	1
	LDW280-25526	LM-1(31)	2
	LDW280-25525	LM-1(31)	2
	LDW280-28791	LTA-8(18)	1
LM	LDW280-25527	LTA-8(18)	1

GAEC SCH NO. ~~50-0~~ 51-3

PART NO. LDW280-18064-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28524	LTA-8(18)	1
LM	LDW280-25527	LTA-8(18)	1
LM	LDW280-25526	LTA-8(18)	2
LM	LDW280-25525	LTA-8(18)	2

GAEC SCH NO. 51-3

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -17

GRUMMAN REL INFO A

PRIM NO. 207 JK(33) MP-5A-5/23/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	R.P. JEROME	WEIGHTS	D.ROBESCH 7/28
LAYOUT BY	R.P. JEROME	RELIABILITY	
CHECKED BY			
GROUPLEADER	J.STRAKOSCH 7/21/66		
VEHDESINT	W.BISCHOFF 7/21		
STRUCTURES	W.H., F.E.B. 7/22	PROJ ENGR	F.DESENA 7/29
STRUCTURES	R.HILDERMAN 7/22	REL GROUP	C.BOTTI 8/1/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIPS
DESCENT STAGE~CORNER POSTS
THERMAL SHIELD INSTALLATION

SIZE B
CODE IDENT NO. 26512
LDW280-18064 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-18064 "NC" 8-1-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET________

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS: REWORK	DISPOSITION OF EXISTING PARTS: SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED NO CHANGE LAST REV NC M.MARKARIAN 5-19-67 SHEET 1.00 OF 4 WAS SHEET 1.00 OF 3 ADDED SHEET 1.10						
A	1	1.00, 1.10. 2.00 & 3.00	C2					EOA1	ADDED -13, REMOVED LEM-1 EFF FROM -11 & ADDED DRILL #30 (1) HOLE	LM-1	✓	✓	M. MARKARIAN 5-19-67		
	2	1.00 & 1.10						EOA2	ON -11 & -13 NEXT ASSY LDW280-28524 WAS LDW280-25524	LTA-8 & LM-1	NOT	REQD			
	3							EOA3	FOR -13 ADDED IN N/A BLOCK LDW280-25528, LTA-8, LM-1, 1 REQD						
	4							EOA4	REF EOA3: IN DESCRIPTION OF EO, NEXT ASSY LDW280-28791 WAS LDW280-25528						
	5							EOA5	IN MOD/BLK FOR -13 ADDED EFF LM-2 (32) THRU LM-15 (45)	LM-2 THRU LM-15					
	6							EOA6	IN MOD/BLK (-13) ADDED LDW280-25527 (LTA-8) (LM-1) REQD	LTA-8 & LM-1					
	7							EOA7	FOR-13, ADDED TO MOD/BLK: LDW280-23527 (LM-2)(LM-3) 1 REQD/MOD, LDW280-54527 (LM-4 THRU 15) 1 REQD/MOD	LM-2 THRU LM-15					
	8	1.00, 1.10 2.00 & 3.00	A3					EOA8	IN F/D, BM & M/B ADDED -15 & FROM -13 MODEL BLOCK, REMOVED NEXT ASSY LDW280-23527 & LDW280-54527			✓			
	9		A2				✓	EOA9	IN F/D, M/B & BM ADDED -17	LM-1 THRU LM-15	NOT	REQD			
	10	1.00 & 1.10						LEO280-518	FOR -13, DELETED LM-4 (34) THRU LM-15 (45) FOR NEXT ASSEMBLY LDW280-54791	LM-4 THRU LM-15		✓	J.Y.		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18064	A

SCALE NONE SHEET 1.10

ENG 77.18 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18064-17	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.080×2×2	NONE	88	
		LDW280-18064-15	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.071×3×4	T6	88	
		LDW280-18064-13	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.071×3×3	T6	88	
		LDW280-18064-11	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.071×3×3	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18064	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

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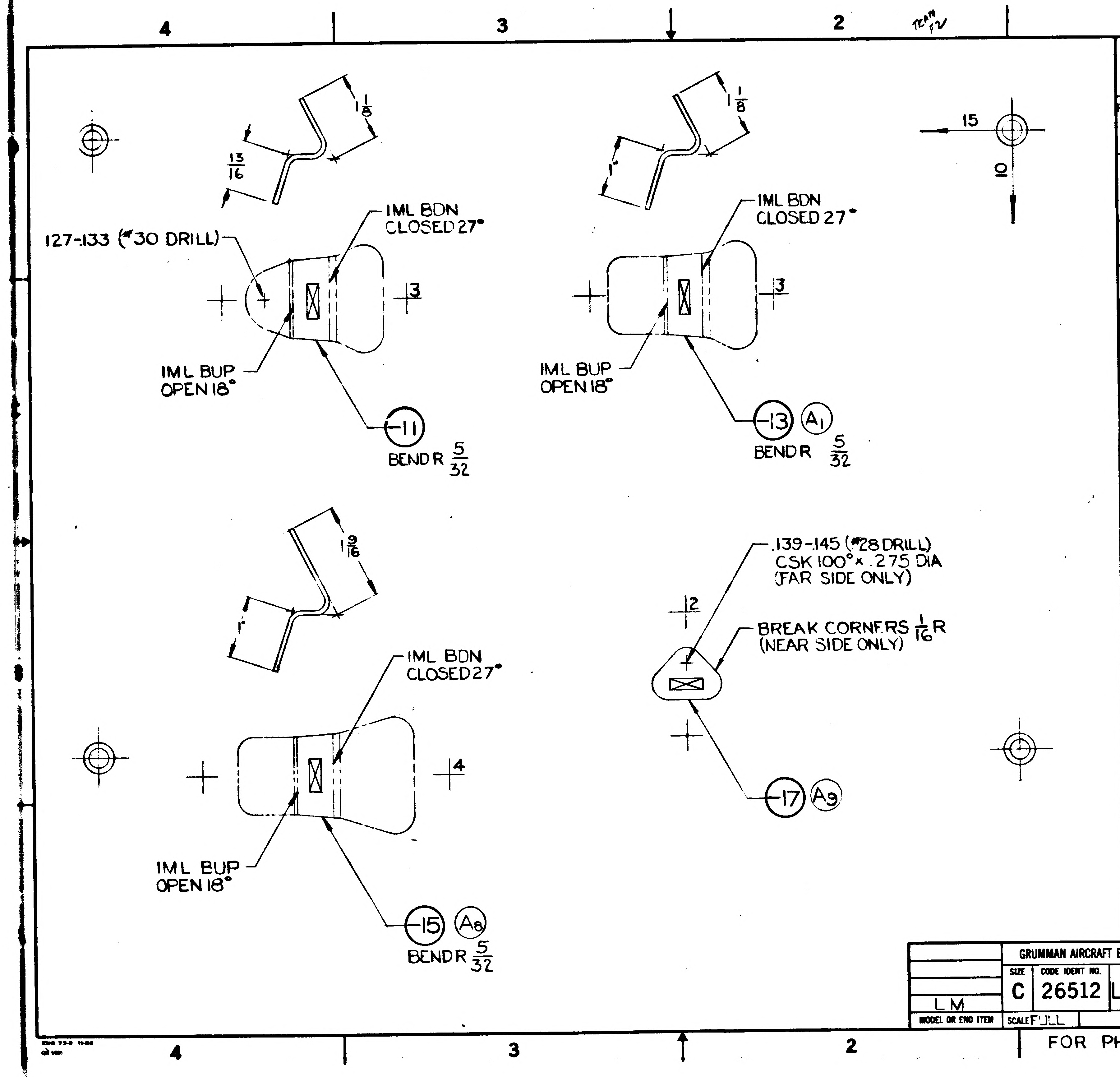
NAS 9-1100


4
3
2
1
TEAM F2
1 1/8
13/16
127-.133 (#30 DRILL)
IML BDN CLOSED 27°
3
IML BUP OPEN 18°
-11
BEND R 5/32
1 1/8
1"
15
10
IML BDN CLOSED 27°
3
IML BUP OPEN 18°
-13 A1
BEND R 5/32
1 9/16
1"
IML BDN CLOSED 27°
4
IML BUP OPEN 18°
-15 A8
BEND R 5/32
.139-.145 (#28 DRILL) CSK 100° × .275 DIA (FAR SIDE ONLY)
12
BREAK CORNERS 1/16 R (NEAR SIDE ONLY)
-17 A9
4
3
2

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBERSTAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18064 A
D
C
LDW280-18064 A
B
A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18064	A
SCALE FULL			SHEET 3.00	

FOR PHOTOREPRODUCTION K2

01

NAS 9-1100

4-G.
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18064	EO NO. A2
CONTROL INFO NO. LM-2-2944	

ON-11 &-13 REVISE NEXT ASSY. CALLOUT TO AGREE WITH EO.

SHEET 1.00 OF 3.00 M/B

LDW280-18064-11	NEXT ASSY.	LDW280-28524 (1)	LTA-8 (18)
		LDW280-25525 (2)	
		LDW280-25526 (2)	
		LDW280-25527 (1)	
-13	NEXT ASSY.	LDW280-28524 (1)	LM-1 (31)
		LDW280-25525 (2)	
		LDW280-25526 (2)	
		LDW280-25527 (1)	

(WAS)

LDW280-18064-11	NEXT ASSY.	LDW280-25524 (1)	LTA-8 (18)
		LDW280-25525 (2)	
		LDW280-25526 (2)	
		LDW280-25527 (1)	
-13	NEXT ASSY.	LDW280-25524 (1)	LM-1 (31)
		LDW280-25525 (2)	
		LDW280-25526 (2)	
		LDW280-25527 (1)	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	✓

REASON FOR EO TO AGREE WITH: LDW280-28524 NEXT ASSY. REQ.S.	DESCRIPTION OF EO ON-11 &-13 NEXT ASSY. LDW280-28524 WAS: LDW280-25524	Ⓡ GAEC C EO RELEASE

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
				APPROVED BY					cmw	cmw		
✓		NOT	REQD	DATE	11/15				10/28/66	10/28/66	10-31-66	10-24-66
REVISE DWG	RECORD EO	REWORK	SCRAP	6	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C2	CLIPS~THERMAL SHIELD INSTL CORNER POST~D.S.	LDW280-18064	A2

ISSUED BY LIAISON -T.J.MARTIN -X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18064

EO NO. A3

CONTROL INFO NO. LM-5-11101

IN N/A BLOCK ADD; FOR -13

LDW280-28791, LTA8(18), LEM1(31) (1 REQD)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: ADDITIONAL CLIP REQD FOR GROUND HOLES

DESCRIPTION OF EO: FOR -13 ADDED IN N/A BLOCK LDW280-25528 - LTA8, LEM1 - 1 REQD.

R GAEC EO RELEASE C4

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	
LM		LM1 (31)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK Not SCRAP RECD

APPROVED BY	WT				NM	DV	RMC(E)	CI
DATE	11-15				11-15-66	11/15	11-21-66	11-16-66
S		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: CLIP D/S-THERM. INSTL CORNER POST

DRAWING NO.: LDW280-18064

EO NO.: A3

ISSUED BY RAGAS X6454 SECTION UDI GROUP NO. 335 PL 5

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18064
EO NO. A4
CONTROL INFO NO. LM-5-11110

THIS IS A REVISION OF E.O. A3

IN DESCRIPTION OF E.O.:

N/A LDW280-28791

WAS

N/A LDW280-25528

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: NEXT ASSY. IN DESCRIPTION DOES NOT AGREE WITH FIELD OF E.O.

DESCRIPTION OF EO: REF. E.O. A3 IN DESCRIPTION OF E.O., NEXT ASSY. LDW280-28791 WAS LDW280-25528

R GAEC EO RELEASE C4

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD.	

APPROVED BY	WT			~	mjm	CH	RHC	
DATE	11/16/66			~	11-16-66	11-16-66	11-21-66	11-16-66
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP O/S-THERM. INSTL. CORNER POST	LDW280-18064	A4

ISSUED BY STEINMETZ X6454 SECTION VD1 GROUP NO. 335 PL. 5

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-18064
EO NO. A5
CONTROL INFO NO. LDW280A4273

IN MOD/BLK FOR LDW280-18064-13
ADD EFF LM-2 & LM-3 N/A LDW280-52791 1/MOD
ADD EFF LM-4 THRU LM-15 N/A LDW280-54791 1/MOD

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: UPDATE EFF TO COVER ADDED HOLES REQD FOR ELECTRICAL GROUNDING

DESCRIPTION OF EO: IN MOD/BLK FOR -13 ADDED EFF LM-2(32) THRU LM-15(45)

GAEC EO RELEASE: C4 VE 12/19/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

APPROVED BY									
DATE	12/1/66				12/14/66		12-15-66	12/16/66
6	YDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: S/D CLIP CORNER POST INSTL
DRAWING NO.: LDW280-18064
EO NO.: A5

ISSUED BY G.BARNES / J. STRAKOSCH X1392 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 18064
EO NO. A6
CONTROL INFO NO. LM 5-11567

IN MOD BLK FOR -13

ADD: N/A LDW280-25527; EFF. LTA8(18) LM1(31); 1EA/REQD

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		5

REASON FOR EO
ADDITIONAL CLIPS REQD FOR RELOCATION OF THERM. SHLD

DESCRIPTION OF EO
IN MOD BLK (-13)
ADDED LDW280-25527 (LTA8)(LM1) REQMTS

GAEC EO RELEASE C

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	
LM		LM1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		NOT	REQD	APPROVED BY	WT			~	CW			
				DATE	1/10/67			~	1/10/67	1-11-67	1-13-67	1/11/67
REVISE DWG	RECORD EO	REWORK	SCRAP	6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S - END PANEL THERM SHLD	LDW280-18064	A6

ISSUED BY D. RAGAS 6454 SECTION VDI GROUP NO. 535 PL 5

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NAS 9-1100

ENG 32.1 REV 2-65

B RELEASED BY LIAISON

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER EMF-A

DWG. NO. LDW280 -18064		EO NO. A7
CONTROL INFO NO. LM 5-11918		

IN MOD BLK ADD TO -13

N/A LDW280-23527 LM-2(32) & LM-3(33) (1 REQD)/MOD

LDW280-54527 LM-4(34) THRU LM-15(45) (1 REQD)/MOD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		5

REASON FOR EO: TO FACILITATE INSTL OF BLKT STRAPS

DESCRIPTION OF EO: FOR-13 ADDED TO MOD BLK:
LDW280-23527 (LM2)(LM3) 1REQD/MOD
LDW280-34527 (LM4 THRU 15) 1REQ/MOD

GAEC EO RELEASE: C JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2 (32)	
LM		THRU 15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY	WT			~				
DATE	2/27/67			~	2/28/67	2-27-67	3-1-67	3-1-67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: CLIP D/S - THERMAL SHLD SUPTS

DRAWING NO.: LDW280-18064

EO NO.: A7

ISSUED BY DON RAGAS SECTION VD1 GROUP NO. 335 PL 5

01

NAS 9-1100

A

ENG 32.1 REV 3-65

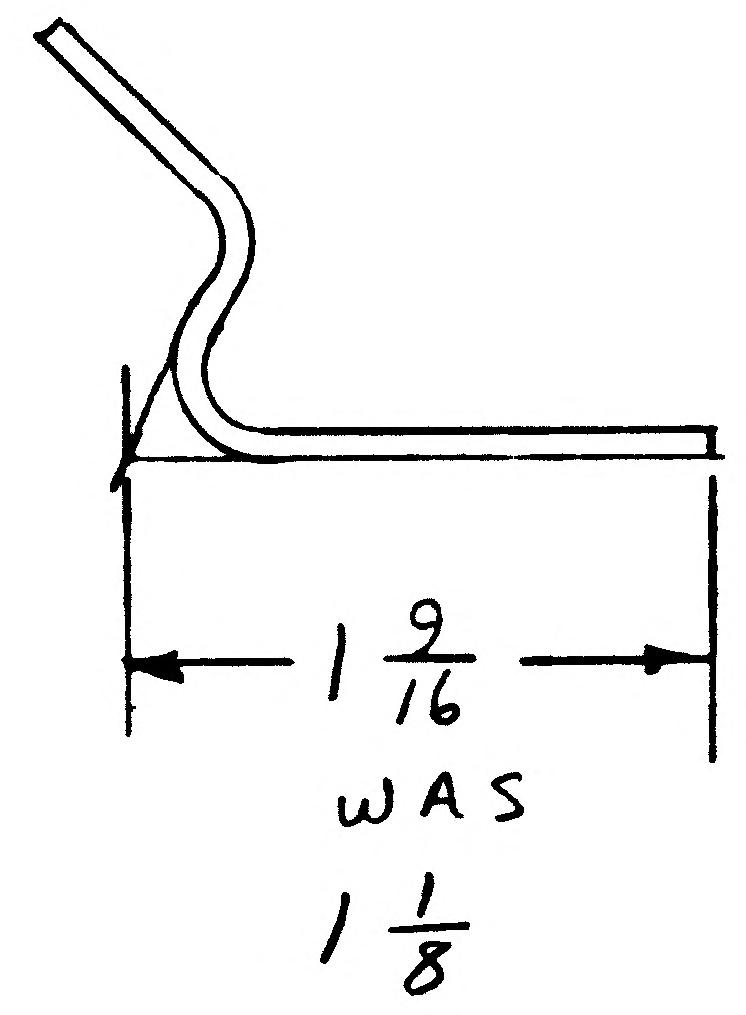
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

EMF-A

DWG. NO. LDW280 -18064		EO NO. A8
CONTROL INFO NO. LM5-11954		

ADD -15 IDENTICAL TO -13 EXCEPT AS SHOWN! 1&T=E

IN MOD BLK FOR -15 (WAS -13) N/A LDW280-23527 1EA/REQD -LM2(32) LM3(33)
LDW280-54527 1EA/REQD LM4(34) THRU LM15(45)



RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG											5C
REASON FOR EO				DESCRIPTION OF EO											R GAEC EO RELEASE
TO FACILITATE INSTL OF BLKT STRAPS				IN F/D, BM & M/B ADDED -15 & FROM -13 MODEL BLOCK, REMOVED NEXT ASSY. LDW280-23527 & LDW280-54527,											JK
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			~	JF		RMC
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			-15	DATE	3/6/67			~	3-8-67	3-7-67	3-10-67	3/8/67
LM		LM2 (32) THRU	LM15 (45)	REVISE DWG	RECORD EO	REWORK	SCRAP	1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				PRIORITY	DRAWING TITLE							DRAWING NO.			EO NO.
				C	CLIP D/S-CORNER POST - T/S INSTL							LDW280-18064			A8

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO. 335 PL 5

01 NAS 9-1100

A

ENG 32.1 REV 3-65

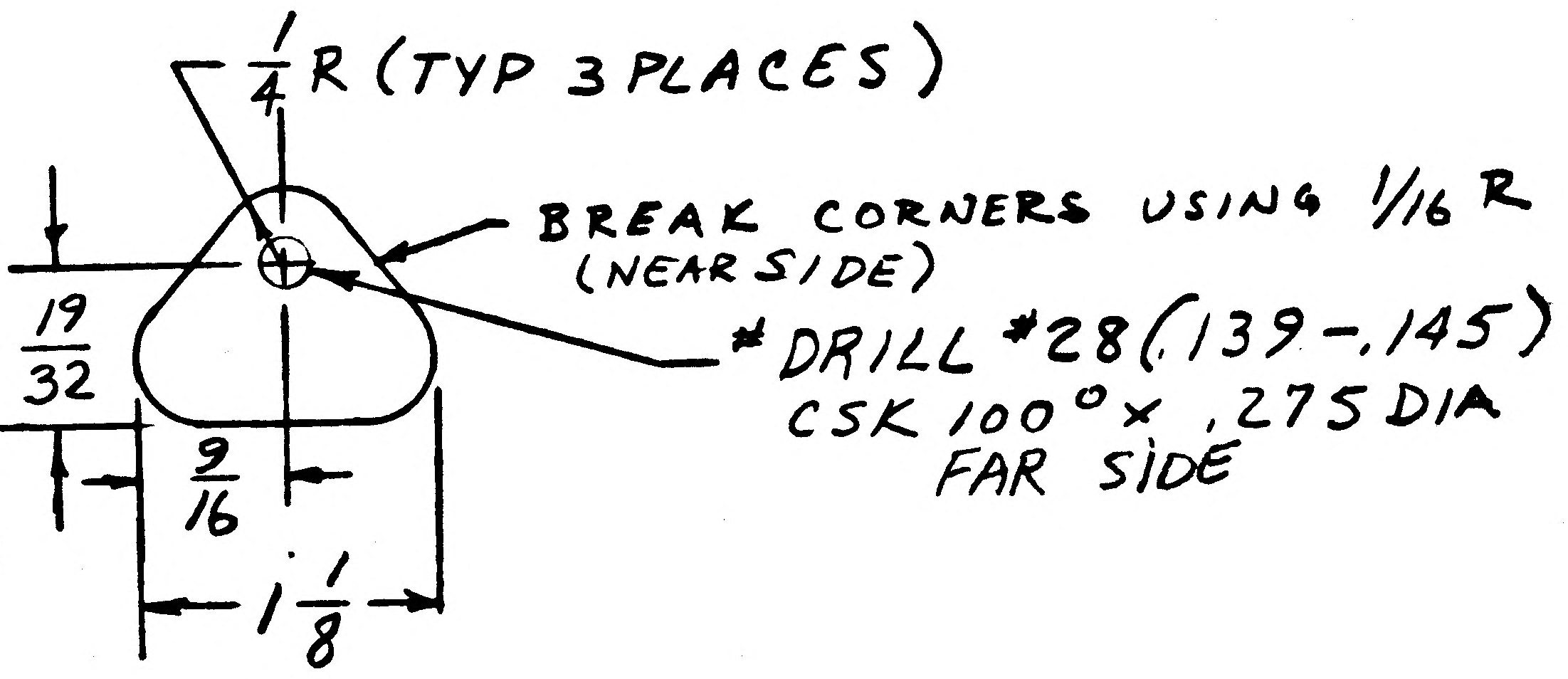
*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18064
EO NO. A9
CONTROL INFO NO. LM5-11984

ADD: -17
MAKE FROM
2024-T3 AL. ALY. SH
(.080) QQ-A-250/4
FIN-88

N/A- LDW280-23712 8 REQD./MOD.
LM1(31) THRU 15(45)
I&T=E


1/4 R (TYP 3 PLACES)
BREAK CORNERS USING 1/16 R
(NEAR SIDE)
*DRILL #28 (.139-.145)
CSK 100° x .275 DIA
FAR SIDE
19/32
9/16
1 1/8

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: TO PREVENT BREAKEAGE OF STANDOFFS.

DESCRIPTION OF EO: IN F/D, M/B & B/M ADDED -17

GAEC EO RELEASE: JK 5 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD 5

APPROVED BY	WT			~		CH		
DATE	3/10/67			~	3/15/67	3-11-67	3-22-67	3-15-67
	YDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: CLIP D/S - THERM SHLD SUPT
DRAWING NO.: LDW280-18064
EO NO.: A9

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

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NAS 9-1100

4 G
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 518
CONTROL INFO NO. LM-2-3[illegible]

IN MODEL BLOCK DELETE LM-4(34) THRU LM-15(45) EFFECTIVITY FROM THE DRAWINGS AND THEIR NOTED DASH NUMBERS WHICH ARE LISTED BELOW FOR NEXT ASSEMBLY LDW280-54791 ONLY.

DRAWING NUMBER	DASH NO.	CHANGE NO.	TITLE	EFFECTIVITY
✓ LDW280-17999	-11	A7	SEE DRAWING	**
✓ -18035	-25	B1		**
✓ -18038	-11	B1		**
✓ -18052	-11 & -15	B3		**
✓ -18064	-13	A10		**
LDW280-18101	-15 & -21	A6	SEE DRAWING	**

** DENOTES LM-4(34) THRU LM-15(45) EFFECTIVITY
* DENOTES APPLICABLE DASH NUMBERS IN DESCRIPTION OF EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ 2

REASON FOR EO: PARTS ARE NOT REQUIRED. USAGE RESTRICTED TO EARLIER VEHICLES

DESCRIPTION OF EO: FOR DASH *, DELETED LM-4(34) THRU LM-15(45) FOR NEXT ASSEMBLY LDW280-54791.

GAEC EO RELEASE: JK C 02131

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓
APPROVED BY / DATE: -1-

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRES. GROUP	LIAISON ENGRG	PROJ ENGRG
			3/17/67	3/16/67	3/? 67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 518

ISSUED BY LIAISON J. MALONEY 3/16/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 22.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280	EO NO. 547
CONTROL INFO NO. LDW280A-6136	

FOR ALL DASH NO.* ON THE FOLLOWING DWGS WHICH HAVE LM-6 EFF ADD LTA-3D/R EFF QTY & N/A TO REMAIN THE SAME AS ON LM-6

DRAWING *	TITLE	CHANGE NO.
LDW280-17787 ✓	SEE DWG	B2
-17792 ✓		B5
-17797 ✓		A2
-17830 ✓		B1
-17841 ✓		A8
-17842 ✓		B1
-17843 ✓		A2
-17844 ✓		A2
-17845 ✓		A2
-17846 ✓		A2
-17850 ✓		B2
-17856 ✓		A2
-17874 ✓		B2
-17882 ✓		B1
-17883 ✓		B3
-17884 ✓		B2
-17885 ✓		B3
-17886 ✓		C4
-17887 ✓		B2
-17891 ✓		A3
-17906 ✓		B1
-17943 ✓		B2
-17948 ✓		B1
-17958 ✓		B2
-17969 ✓		B2
-17973 ✓		A3
-17977 ✓		B1
-17981 ✓		B1
-18064 ✓		B1
-18065		C1
-18066		A2
-18067		A3
-18068		A2
-18089		B2
-18090		B4
-18137		B2
-18195		C2
LDW280 -18202		B2
LDW280P 18133		A2
LDW 280-54684		A2
LDW 330-52056		B3
	SEE DWG.	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	LCD19-1242	2

REASON FOR EO: FAILURE OF LTA-3D IN STATIC TEST

DESCRIPTION OF EO: IN M/B FOR * ADDED LTA-3DR EFF

GAEC EO RELEASE: JK 4/4/67 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R (4K)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	DATE 3/28/67
✓ REVISE DWG	RECORD EO	NOT REWORK	RQD SCRAP	5	YDI

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
		JAS 3/28/67	MJW 3/30/67		3-30-67	4/4/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	547

ISSUED BY G. BARNES/J. STRAKOSCH X1153 SECTION YDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18064		EO NO. B2
CONTROL NO. LDW280B0579		

ON-17 DELETED LM-3(33) THRU LM-15(45) EFFECTIVITY FOR
N/A LDW280-23712.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2360 (5)

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE
PLUME HEATING PROTECTION	ON-17 REMOVED LM-3(33) THRU LM-15(45) EFF:	JK 12/21/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			-17	DATE	12/19/67			12-19-67	12/21/67		12/19/67	12-20-67
REVISE DWG	RECORD EO	REWORK	SCRAP	P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIPS ~ D/S ~ CORNER POSTS THERMAL SHLD INSTALLATION.	LDW280-18064	B2

6 JAN 68
ISSUED BY J. J. ROGERS / P. THORJUSEN X1392 SECTION VEH. DES & INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1332
CONTROL INFO NO. LDW280B 7422

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18038 ✓	B4 ✓	SEE DWG
-18049 ✓	B2	↑
-18050 ✓	B3	
-18051 ✓	B5	
-18054 ✓	B2	
-18064 ✓	B3	
-18065	D2	
-18066	A3	
-18067	A4	↓
LDW280-18068	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG. 8-9 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: HF 4/12

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/1/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1332

052869 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1715
CONTROL INFO NO. LDW280B7957

FOR DASH NO.'S* NOTED ON THE FOLLOWING DWG., N/A LDW280-54527 S/B LDW280-60527 FOR EFF. LM-10(40) THRU LM-14(44).

ADD LTA-11(23), LTA-3DR/1(460) AND TM-13(52) REQTS. WITH SAME N/A & QTY SAME AS LM-10(40).

DRAWING NO.	DASH NO.*	TITLE	CHG.
✓ LDW280-18064	-15	SEE DWG.	B4
✓			
✓ -18638	-5, -6		A6
✓ M17112	-3		D5
✓ M17325	-1, -2		E2
✓ LDW280 M17403	-9, -11	SEE DWG.	E7

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG. 62 (5)

REASON FOR EO: EPS BATTERIES RELOCATED FROM QI & IV TO -Z BULKHEAD

DESCRIPTION OF EO: FOR * N/A LDW280-60527 WAS LDW280-54527 AND ADDED LTA-11(23), LTA-3DR/1(460), & TM-13(52) EFF.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	
LM		LTA-3DR/1(460)	
LM LM		LTA-11(23) TM-13(52)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	9/30/69			9-30-69	9/30/69		10/1/69	10/8/69

GAEC EO RELEASE: RS 10-29; 10/8/69

PRIORITY: C | DRAWING TITLE: SEE DWG. | DRAWING NO.: LEO 280 | EO NO.: 1715

CDR 10/24/69
ISSUED BY L. KRAVITZ/THORJUSEN x87222 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18064 | EO NO. B5
CONTROL INFO NO. LDW280B9275

IN MOD/BLK FOR -15 & N/A LDW280-60527
REMOVE LM-10(40) THRU LM-14(44), LTA-11(23),
& LTA-3DR/1(460) & TM-13(52) EFFECTIVITY.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG 62 (5)

REASON FOR EO
THERMAL SHIELD REDESIGN ON -Z END BULKHEAD

DESCRIPTION OF EO
IN MOD/BLK
FR -15 REMOVED LM-10(40) THRU LM-14(44), TM-13(52), LTA-11(23) & LTA-3DR/1(460) EFFECTIVITY FOR N/A LDW280-60527

GAEC EO RELEASE: JK 11/6/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	LM-14(44)
		TM-13(52), LTA-	11(23)
		LTA-3DR/1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓			✓	APPROVED BY								
				DATE	11/3/69			11-3-69	11/4/69		11/5/69	11/6/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S – CORNER POSTS THERMAL SHIELD CLIPS INSTALLATION	LDW280-18064	B5

COR 11/14/69
ISSUED BY G.BARNES/P.THORJUSEN x 87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18064
EO NO. B6
CONTROL INFO NO. LDW280 B9917

IN M/B FOR -15 ADD N/A LDW280-60527
EFFECTIVE ON LM-10(40) THRU LM-14(44) 1 REQD

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PK 92 (5)

REASON FOR EO: TO PROVIDE CLIP FOR THERMAL. SHIELD IN QUAD II.

DESCRIPTION OF EO: ADDED IN M/B FOR-15 N/A LDW280-60527 1 REQ'D.

GAEC EO RELEASE: RR 2-11-70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU	
		LM14(44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	NOT REWORK	REQD SCRAP

APPROVED BY	RST				WB		RST	GM
DATE	2-11-70			2/11/70	2/11/70		2-11-70	2/11/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIPS DESCENT STAGE CORNERPOSTS THERMAL SHIELD INSTL.	LDW280-18064	B6

CDR021170
ISSUED BY A.GROSS / D.RAGAS SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS: REWORK	DISPOSITION OF EXISTING PARTS: SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED NO CHG LAST REVISION NO CHG. SH. 1OF5 WAS 1OF1. LOFTED DWG WAS DIMENSIONED.	JAEGGI	8-30	-66			
A	1	1.00,1.01, 1.10						EO A1	IN MOD. BLK FOR-17, ADDED N/A LDW280-25524, LDW280-25525, LDW280-25526 FOR LTA-8, LEM-1. IN MOD BLK. FOR-18, ADDED N/A LDW280-25524 & LDW280-25527 FOR LTA-8 & LEM-1.	LTA-8, LEM -1	NOT	REQD	JAEGGI 8-30-66		
	2	1.00,1.01, 1.10,2.00, 3.00							REMOVED -11,-12,-13,-15,-16, &-19, AND ADDED -21,-22,-23,-25,-26,-27 -28 &-29.	LEM-2 THRU -6		-11,-12,-13 -15,-16,-19			
	3	1.01,1.10						Ⓡ	FOR-17 &-18, REMOVED LEM-1(31) EFF.	LEM-1		✓	JAEGGI 8/31/66		
B	1	1.00,1.10						EO B1	ON -17 REMOVED LM-2(32) THRU LM-6(36) EFF. ON -27 ADDED LM-2(32) THRU LM-6(36) EFF.	LM-2 THRU LM-6		-17	E. LECUN 2-20-67		
	2	1.00,1.01 1.10,2.00 3.00						EO B2	IN F/D, B/M & MOD BLK ADDED -31,-32,-33,-35,-36,-37 & -39 REMOVED -21,-22,-23,-25,-26 & -29; FOR -27 REMOVED LM-1 N/A LDW280-25525 & 25526; FOR -28 EFF REMOVED LM-1 N/A LDW280-25524 & 25527; REMOVED REQTS FOR-18 FOR EFF LM-2 THRU LM-6; ADDED N/A REQTS FOR -17 FOR LM-1; FOR -27 & -28 ADDED N/A REQTS FOR LM-2 THRU LM-6, FOR-18 ADDED LM-1 REQTS	LM-1 THRU LM-6		✓			
	3	1.00,1.01,1.10						LEO 280-328	FOR -31,-32,-33,-35,-36,-37 & -39 ADDED LEM-7 THRU LEM-15 EFF	LEM-7 THRU LEM-15	NOT	REQD			
	4	1.00,1.01,1.10 2.00,3.00					✓	EO B4	ADDED -43	LTA-8, LM-1 THRU LM-15					
	5	1.00,1.10 3.00						EO B5	ADDED LDW280-18065-41 REMOVED LDW280-18065-33 ADDED LM-2 THRU LM-15 FOR -37	LM-2 THRU LM-15		-33			
	6	1.10,3.00						EO B6	REF EO B5 ADDED 2 DIM WAS 1 23/32	NOT REQD	NOT	REQD			
	7	1.01,1.10						EO B7	REFERENCE EO B2 ADDED FOR -37 N/A LDW280-23527 (1/MOD) LDW280-54527 (1/MOD)	LM-2 THRU LM-15					
	8	1.00,1.10,3.00						EO B8	ADDED -45, REMOVED -41			-41			
	9	1.10,3.00						EO B9	FOR -45, IN FLD/DWG REVISED CUTOUT DIMENSION 1 17/32 WAS 1 15/32		✓				

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18065	B
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18065-47	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075-0	.063 X 2 X 2	T6	88	
		LDW280-18065-43	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-0	.050 x 1 x 4 1/2	T42	88	
		-45				QQ-A-250/12	7075-0	.071 x 4 x 5	CM&T6		
		-39						.071 x 3 3/8 x 3 5/8			
		-23						.071 x 2 5/8 x 3 1/8			
		-27						.071 x 2 5/8 x 3 1/8			
		-36						.071 x 3 1/2 x 3 1/2			
		-35						.071 x 3 1/2 x 3 1/2			
		-37						.071 x 3 1/8 x 3 1/2			
		-32						.071 x 3 1/4 x 3 5/8			
		-31						.071 x 3 1/4 x 3 5/8			
		-18						.071 x 2 3/8 x 2 7/8			
		LDW280-18065-17	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075-0	.071 x 2 3/8 x 2 7/8	CM&T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030
T42	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18065	C

SCALE NONE

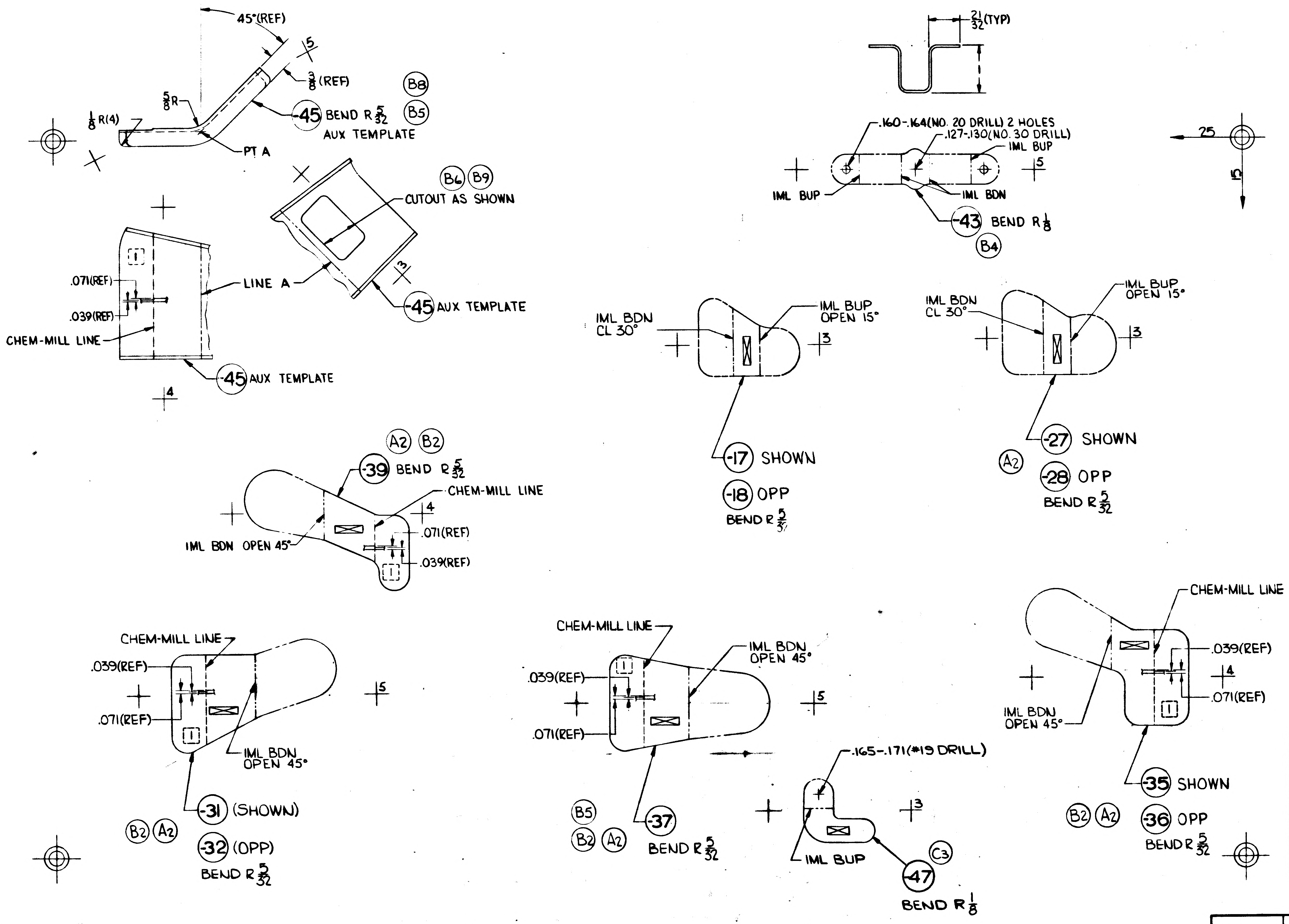
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

LDW280-18065 C



45°(REF)
5
3/8 (REF)
5/8 R
1/8 R(4)
-45 BEND R 5/32
AUX TEMPLATE
B8
B5
PT A
B6
B9
CUTOUT AS SHOWN
13
-45 AUX TEMPLATE
.071(REF)
LINE A
.039(REF)
CHEM-MILL LINE
-45 AUX TEMPLATE
4
21/32 (TYP)
.160-.164(NO. 20 DRILL) 2 HOLES
.127-.130(NO. 30 DRILL)
IML BUP
5
IML BUP
IML BDN
-43 BEND R 1/8
B4
25
10
IML BDN CL 30°
IML BUP OPEN 15°
3
-17 SHOWN
-18 OPP
BEND R 5/32
IML BDN CL 30°
IML BUP OPEN 15°
3
A2
-27 SHOWN
-28 OPP
BEND R 5/32
A2
B2
-39 BEND R 5/32
CHEM-MILL LINE
4
.071(REF)
IML BDN OPEN 45°
.039(REF)
CHEM-MILL LINE
.039(REF)
.071(REF)
IML BDN OPEN 45°
5
B2
A2
-31 (SHOWN)
-32 (OPP)
BEND R 5/32
CHEM-MILL LINE
IML BDN OPEN 45°
.039(REF)
.071(REF)
5
B5
B2
A2
-37 BEND R 5/32
.165-.171(#19 DRILL)
3
IML BUP
C3
-47 BEND R 1/8
CHEM-MILL LINE
.039(REF)
4
.071(REF)
IML BDN OPEN 45°
B2
A2
-35 SHOWN
-36 OPP
BEND R 5/32

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⌧ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18065-31,-32,-35,-36,-37,-39-45

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM	DEPTH OF CUT
1	.039 $^{+.005}_{-.000}$	.032 (REF)

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	D	26512	LDW280-18065	C
	SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1 K2

01 [illegible]

NAS 9-1100

LDW280-18065 D

PART NO. LDW280-18065-39

		GAEC SCH NO	REQD PER MODULE
LEM	LDW280-54525	LTA-11(23)	1
		LTA-3w R(46)	1
		LEM-14(44)	1
		THRU	
	LDW280 54525	LEM-4(34)	1
	LDW280-52525	LEM-3(33)	1
LEM	LDW280-52525	LEM-2(32)	1

PART NO. LDW280-18065-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25526	LEM-1(31)	1
	-25525	LEM-1(31)	1
	-28524	LEM-1(31)	2
	-25526	LTA8 (18)	1
	-25525	LTA-8(18)	1
LEM	LDW280-28524	LTA-8(18)	2

PART NO. LDW280-18065-18

			REQD PER MODULE
LEM	LDW280-25527	LEM-1(31)	2
	LDW280-28524	LEM-1(31)	1
	LDW280-25527	LTA-8(18)	2
LEM	LDW280-28524	LTA-8(18)	1

PART NO. LDW280-18065-32

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-54526	LTA-11(23)	1
LEM	LDW280-54526	LTA-3D/R(46)	1
LEM	LDW280-54526	LEM-14(44)	1
		THRU	1
	LDW280-54526	LEM-4(34)	1
	LDW280-52526	LEM-3(33)	1
LEM	LDW280-52526	LEM-2(32)	1

PART NO. LDW280-18065-28,-36,-45

			REQD PER MODULE
LEM	LDW280-54527	LTA-3D/R(46)	1 EA
LEM	LDW280-54527	LEM-9(39)	1 EA
		THRU	1 EA
	LDW280-54527	LEM-4(34)	1 EA
	LDW280-23527	LEM-3(33)	1 EA
LEM	LDW280-23527	LEM-2(32)	1 EA

PART NO. LDW280-18065-31 & -35

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO. 51-4	REQD PER MODULE OR END ITEM
LEM	LDW280-54524	LTA-11(23)	1 EA
LEM	LDW280-54524	LTA-3D/R(46)	1 EA
LEM	LDW280-54524	LEM-14(44)	1 EA
		THRU	1 EA
	LDW280-54524	LEM-4(34)	1 EA
	LDW280-52524	LEM-3(33)	1 EA
LEM	LDW280-52524	LEM-2(32)	1 EA

FOR ADDITIONAL USAGE INFORMATION SEE SH. 1.01 & 1.02

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	1.10	2.00	3.00				
REV	D	D	B	C	C				
SHEET	1.02	1.11	1.12						
REV	D	D	D						
SHEET									
REV									

LAST SECT LTR USED —
LAST DASH NO. USED -47
GRUMMAN REL INFO D
PRIM NO. 207 UK(001) VNE-MCD-11/6/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.010 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM I
DOCUMENTATION TYPE II
DRAWN BY R.JEROME
LAYOUT BY
CHECKED BY
GR LDR J.STRAKOSCH 7/18
VEH DES INT W.BISCHOFF 7/19
STRUCTURE FEB 7/19
STRUCTURE HILDERMAN 7/19
WEIGHTS D.ROBESCH 7/25
PROJ ENGR RMC/DESENA 7/29
REL GROUP BOTTI 8/1/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIPS
THERMAL SHIELD ~ CORNER POSTS
R.H. SIDE

SIZE B
CODE IDENT NO. 26512
LDW280-18065 D
SCALE NONE
SHEET 1.00 OF 8

ENG 77.1 12-65

CDR REV 'D' 11/14 - (PKG 67)

THIS DWG SUPERSEDES LDW280-18065 'NO CHG' 8/24/66

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23544	LTA-3D/R(46)	1
	LDW280-23543	LTA-3D/R/46	2
	LDW280-23542	LTA-3D/R(46)	1
	LDW280-23544	LM-9(39)	1
		THRU	
	LDW280-23544	LEM-4(34)	1
	LDW280-23543	LEM-9(39)	2
		THRU	
	LDW280-23543	LEM-4(34)	2
	LDW280-23542	LEM-9(39)	1
		THRU	
	LDW280-23542	LEM-4(34)	1
	LDW280-23541	LEM-9(39)	2
		THRU	
	LDW280-23541	LEM-4(34)	2
	52544	LEM-3(33)	1
	52543	LEM-3(33)	1
	52541	LEM-3(33)	2
	52544	LEM-2(32)	1
	52543	LEM-2(32)	1
	52541	LEM-2(32)	2
	25544	LEM-1(31)	1
	25543	LEM-1(31)	1
	25541	LEM-1(31)	2
	25544	LTA-8(18)	1
	25543	LTA-8(18)	1
LEM	LDW280-25541	LTA-8(18)	2
PART NO. LDW280-18065-43		GAEC SCH NO.	

LDW280-18065 D

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-54526	LTA-11(23)	2
LEM	LDW280-54525	LTA-11(23)	2
LEM	LDW280-54524	LTA-11(23)	1
PART NO. LDW280-18065-37 (CONT)		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-54527	LTA-3D/R(46)	1
	LDW280-54526	LTA-3D/R(46)	2
	LDW280-54525	LTA-3D/R(46)	2
	LDW280-54524	LTA-3D/R(46)	1
	LDW280-54527	LEM-9(39)	1
		THRU	
	LDW280-54527	LEM-4(34)	1
	LDW280-23527	LEM-3(33)	1
	LDW280-23527	LEM-2(32)	1
	LDW280-54526	LEM-14(44)	2
		THRU	
	LDW280-54526	LEM-4(34)	2
	LDW280-52526	LEM-3(33)	2
	LDW280-52526	LEM-2(32)	2
	LDW280-54525	LEM-14(44)	2
		THRU	
	LDW280-54525	LEM-4(34)	2
	LDW280-52525	LEM-3(33)	2
	LDW280-52525	LEM-2(32)	2
	LDW280-54524	LEM-14(44)	1
		THRU	
	LDW280-54524	LEM-4(34)	1
	LDW280-52524	LEM-3(33)	1
LEM	LDW280-52524	LEM-2(32)	1
PART NO. LDW280-18065-37		GAEC SCH NO.	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET								
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL INFO

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
LINE ITEM
DOCUMENTATION TYPE

DRAWN BY
LAYOUT BY
CHECKED BY
PROJ ENGR
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18065	D
SCALE	NONE	SHEET 1.01	

ENG 77.1 12-65

0 1

NAS 9-1100

LEM	LDW280-54524	LTA-3D/R(46)	1
LEM	LDW280-52524	LEM-2(32)	1

PART NO. LDW280-18065-27

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23519	LEM-9(39)	1
↕	↕	THRU	
		LEM-4(34)	1
LEM	LDW280-23519	LTA-3(13)	1

PART NO. LDW280-18065-47

LDW280-18065 D

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23541	LTA-3D/R(46)	2
LEM	LDW280-60587	LTA-3DR/1(46)	1
↓	↕	LTA-11(23)	↕
		LEM-14(44)	
		LEM-13(43)	
		LEM-12(42)	
LEM	LDW280-60587	LEM-11(41)	
LEM	LDW280-60587	LEM-10(40)	1
LEM	LDW280-54587	LTA-3D/R(46)	1
↕	LDW280-54587	LEM-9(39)	1
		THRU	
	LDW280-54587	LEM-4(34)	1
	LDW280-52587	LEM-3(33)	1
LEM	LDW280-52587	LEM-2(32)	1

PART NO. LDW280-18065-43 (CONT)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET									
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL INFO

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
LINE ITEM
DOCUMENTATION TYPE
DRAWN BY
LAYOUT BY
CHECKED BY
PROJ ENGR
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW28018065 | D
SCALE NONE | SHEET 1.02 OF

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.12

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
B	10	1.00,1.11						EO B10 (R)	IN MOD BLK FOR -43 ADDED N/A LDW280-52587 LM-2 LM-3 & LDW280-54587 LM-4(34) THRU 15(45) 1 EA/MOD ADDED SH 1.11	LM-2 THRU LM-15	NOT	REQD	LeCun 2-27-67	☒	☒
C	1	1.00,1.11					✓	LEO280-547 LCD1242	IN MOD BLK FOR -27,-31 & -35 N/A LDW280-54524; -28,-36 & -45 N/A LDW280-54527; -32 N/A LDW280-54526; -37 N/A LDW280-54524,-54525,-54526 & -54527; -39 N/A LDW280-54525; -43 N/A LDW280-23541,-23542,-23543,-23544 & -54587 ADDED LTA-3D/R EFF	LTA-3D/R	NOT	REQD	J. AVILES 4-11-68	☒	☒
	2	1.00,1.11					✓	EO C2	FOR -17 & -18 CHANGED N/A, EFF LTA-8(18) & LM-1(31) WAS LDW280-25524	LTA-8 LM-1				☒	☒
	3	1.00,1.11 2.00,3.00	4A			✓		LCD 2011 CCA 668 (R) PKG 23	CREATE -47 BRACKET N.Y.B.	LTA-3 LM-4 THRU LM-15	✓				
D	1	1.00,1.10		P		✓		EOD1 LCD2360	REMOVE -27 FROM LM-3(33) THRU LM-15(45) ADDED SH. 1.02	LM-3 THRU LM-15		-27	A. COZZALI 10 18-69	☒	☒
	2	1.00,1.01 1.02				✓		LEO280-1332 LCD3587 CCA1821	DELETED LM-15(45) EFF FROM -28,-31,-32,-35,-36,-37,-39, -43,-45 & -47	LM-15		✓		☒	☒
	3	1.00,1.01 1.02				✓		LEO280-1530 LCD 3890	ON -28,-31,-32,-35,-36,-37,-39,-43,-45 & -47 ADDED LTA-11 REQMTS	LTA-11	NOT	REQD		☒	☒
	4	1.00,1.01 1.02				✓		EOD4 LCD3890	FOR -43 N/A LDW280-60544 WAS LDW280-23544 FOR LM-10(40) THRU LM-14(44) & LTA-11(23) ADDED LTA-3D/R1 (460) EFF	LM-10 THRU LM-14 LTA-11 LTA-3DR/1	NOT	REQD		☒	☒
	5	1.00,1.01 1.02				✓		LEO280-1620 LCD3890	FOR -47 ADDED LTA-3DR/1 (460) EFF	LTA-3DR/1	NOT	REQD		☒	☒
	6	1.00,1.01 1.02				✓		EOD6 LCD3890	FOR -43 N/A LDW280-60543 WAS LDW280-23543 FOR LM-10(40) THRU LM-14(44) & LTA-11(23) ADDED LTA-3DR/1(460) EFF	LM-10 THRU LM-14 LTA-11 LTA-3DR/1	NOT	REQD	H.D.	☒	☒

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS
C	Thoyusa 4-17-68	4/18/68	NM WJ 3/17/68	4/19	
D					

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18065	D

SCALE NONE SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
D	7	1.00, 1.01 1.02				✓		LEO280-1698 LCD3890	ON-43 N/A-LDW280-60587 WAS LDW280-54587 FOR LM-10(40) THRU LM-14(44), LTA-11(23). ADDED LTA-3D/R1(460) ADDED SH 1.12	LM-10THRU LM-14, LTA-11 LTA-3DR/1	NOT	REQD.	A. COZZALI 10-18-69		
	8	1.00, 1.01 1.02				✓		LEO280-1722 LCD3994	FOR -47 REMOVED EFF. FOR LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3D/R-1(460)	LM-10THRU LM-14, LTA-11 LTA-3DR/1		-47			
	9	1.00, 1.01 1.02				✓		EOD9 LCD3890	FOR -43, ON N/A, LDW280-60541, LDW280-60542, LDW280-60543 LDW280-60544, REMOVED LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3D/R-1(460) EFF	LM-10THRU LM-14, LTA-11 LTA-3DR/1		-43			
	10	1.00, 1.01 1.02				✓		EOD10 LCD3994	FOR -28, -36, -37 & -45, N/A LDW280-60527 WAS LDW280-54527 AND ADDED LTA-3D/R1(460) & TM-13(52) EFF	LM-10THRU LM-14, LTA-11 LTA-3DR/1 TM-13	✓				
	11	1.00, 1.02 1.03				✓		LCD-3890	REF EOD6: N/A LDW280-60543 WAS LDW280-23543 SHOULD BE N/A LDW280-60541, LDW280-60542 AND LDW280-60543 WAS LDW280-23541, LDW280-23542 AND LDW280-23543 RESP. H.D. W. Bulkley 10/27/9	LM-10THRU LM-14, LTA-11 LTA-3DR/1	NOT	REQD.		F. [illegible] 11-1-69	
	12	1.00 1.01				✓		LCD3994 PKG 62	ON-28-36-37, & -45, REMOVED LM-10THRU LM-14, LTA-3D/R1 (460), TM-13(52), & LTA-11(23) EFF ON NEXT ASSY LDW280-60527. W.BULKLEY 11-3-9	LM-10THRU LM-14 LTA-3DR/1 TM-13 LTA-11		-28 -36 -37 -45			

CHG APPROVED											
LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS						
D	Thorgusen 11-5-69	F.D.R. 11/5/69		11/5/69							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18065	D
SCALE NONE			SHEET 1.12

ENG 77.16 3-66

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1754
CONTROL INFO NO. LDW280 B 8735		

ON THE FOLLOWING DRAWINGS REMOVE LM-10(40) THRU LM-14(44) & LTA-11(23) REQ'TS FOR THE NOTED N/A'S & QTY'S

*DRAWING NO.	QTY *-*	TITLE	N/A *-*-*	CHG NO
LDW280-17695-12	1	ANGLE	LDW280-54524	D4
-14	1	"	↑ -54524	
-13	1	"	-54525	
-14	1	"	↓ -54526	
-11	1	"	LDW280-54526	
LDW280-17696-11	1	STIFFNER	LDW280-54526	D8
-14	1		↓ -54526	
-19	1		LDW280-54526	
LDW280-18065-31	1	CLIP	LDW280-54524	E1
-37	1	"	↑ -54525	
-37	1	"	-54526	
-32	1	"	↓ -54526	
-39	1	"	LDW280-54525	
LDW280-18407-11	1	CHANNEL	LDW280-54526	B4
LDW280-18419-15	1	STIFFNER	LDW280-54526	A6
-21	1	"	LDW280-54526	
LDW280M17814-13	1	FITTING	LDW280-54526	B4
LDW280-18195-15	1	CLIP	LDW280-23530	C6
-16	1	"	LDW280-23530	
LDW280-17733-11	1	STIFFNER	LDW280-23530	C3
-13	1	"	LDW280-23530	

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG ✓	LCD 3994 PKG 61 (5)
REASON FOR EO: ADDITION OF PAYLOAD SPT FITTING IN QUAD I		DESCRIPTION OF EO: FOR (*) REMOVED (*-*)/MOD FOR N/A (*-*-*) EFF LM-10(40) THRU LM-14(44) & LTA-11(23)	GAEC EO RELEASE: JK 11/14/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU LM-14(44)	
		& LTA-11(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	11/11/69			11-11-69	11-11-69		11/11/69	11/13/69
✓			✓		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE ABOVE	LEO 280	1754

11/14/69
ISSUED BY F. Olivera EXT 86048 SECTION VDI GROUP NO. 335 PL 21

01 NAS 9-1100

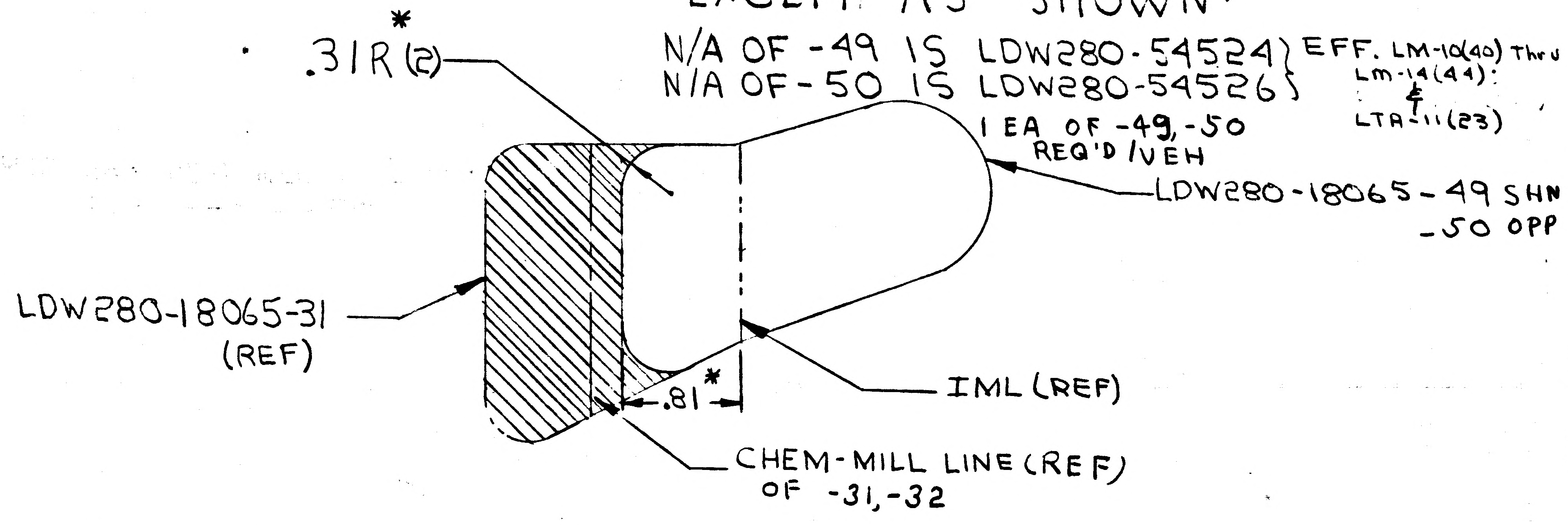
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18065
EO NO. E2
CONTROL INFO NO. LDW280B9764

IN F/D & B/M ADD -49 & -50 : IDENTICAL TO -31 & -32 RESPECTIVELY EXCEPT AS SHOWN:

N/A OF -49 IS LDW280-54524 }
N/A OF -50 IS LDW280-54526 } EFF. LM-10(40) Thru LM-14(44): & LTA-11(23)



* DIMENSIONS ARE FOR DRAFTSMAN'S USE ONLY

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 92 (5)

REASON FOR EO: REDESIGN CLIPS TO ACCOMMODATE MESA

DESCRIPTION OF EO: IN F/D & B/M ADDED -49 & -50

GAEC EO RELEASE: JK 1/27/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
		LM-14(44);	
		LTA-11(23)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)
PRIORITY: C

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	1-19-70 VDI			1/19/70	1/20/70		1/20/70	1/27/70

DRAWING TITLE: CLIPS ~ THERMAL SHIELD ~ CORNER POSTS ~ RH SIDE
DRAWING NO. LDW280-18065
EO NO. E2

CDR013170
ISSUED BY P. LANDRY/G. HANSMANN X87222 SECTION VEH. DES. INT GROUP NO. 335 PL 25

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NAS 9-1100

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NAS 9-1100

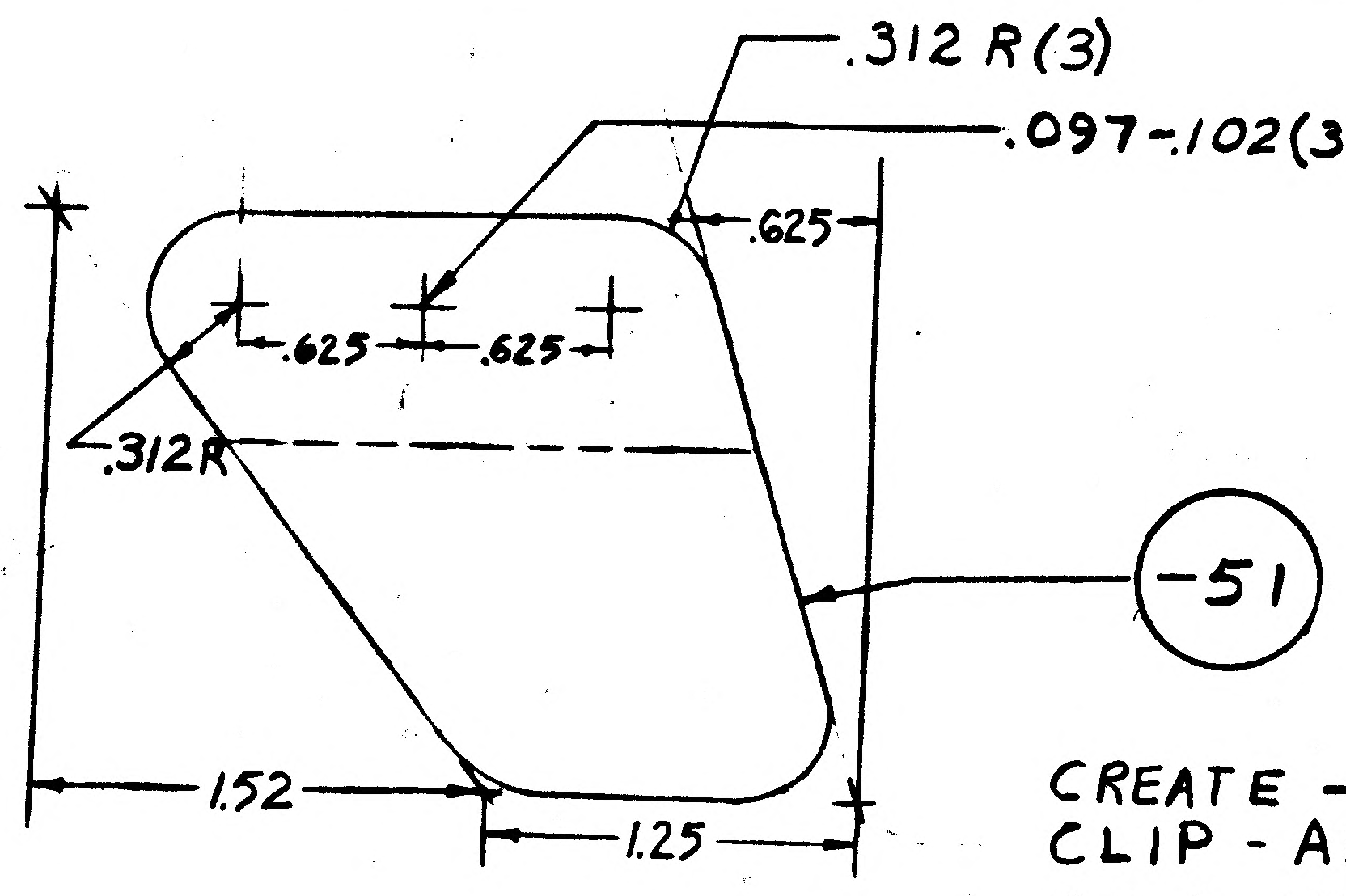
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

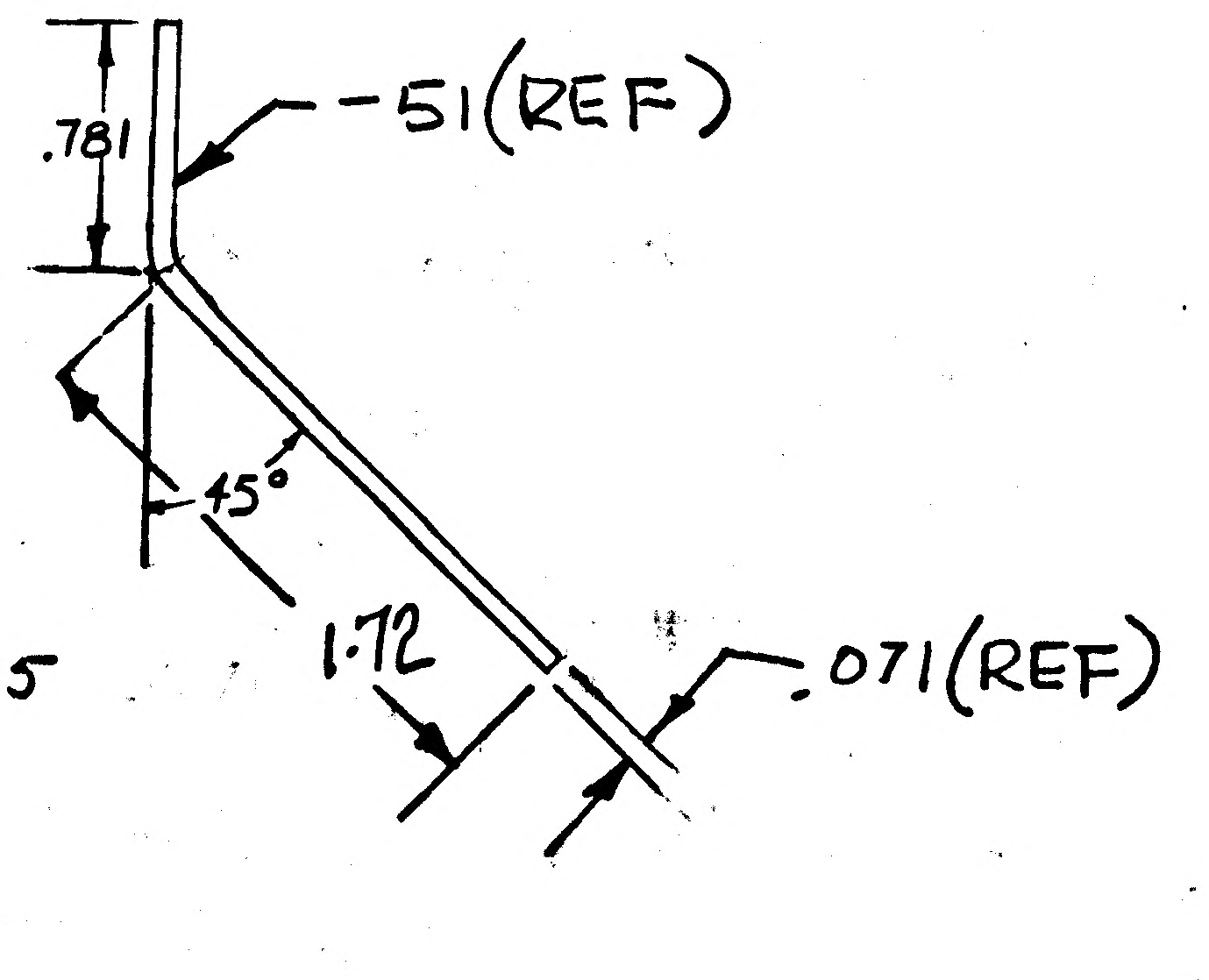
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18065		EO NO. E3
CONTROL INFO NO. LDW280-89918		

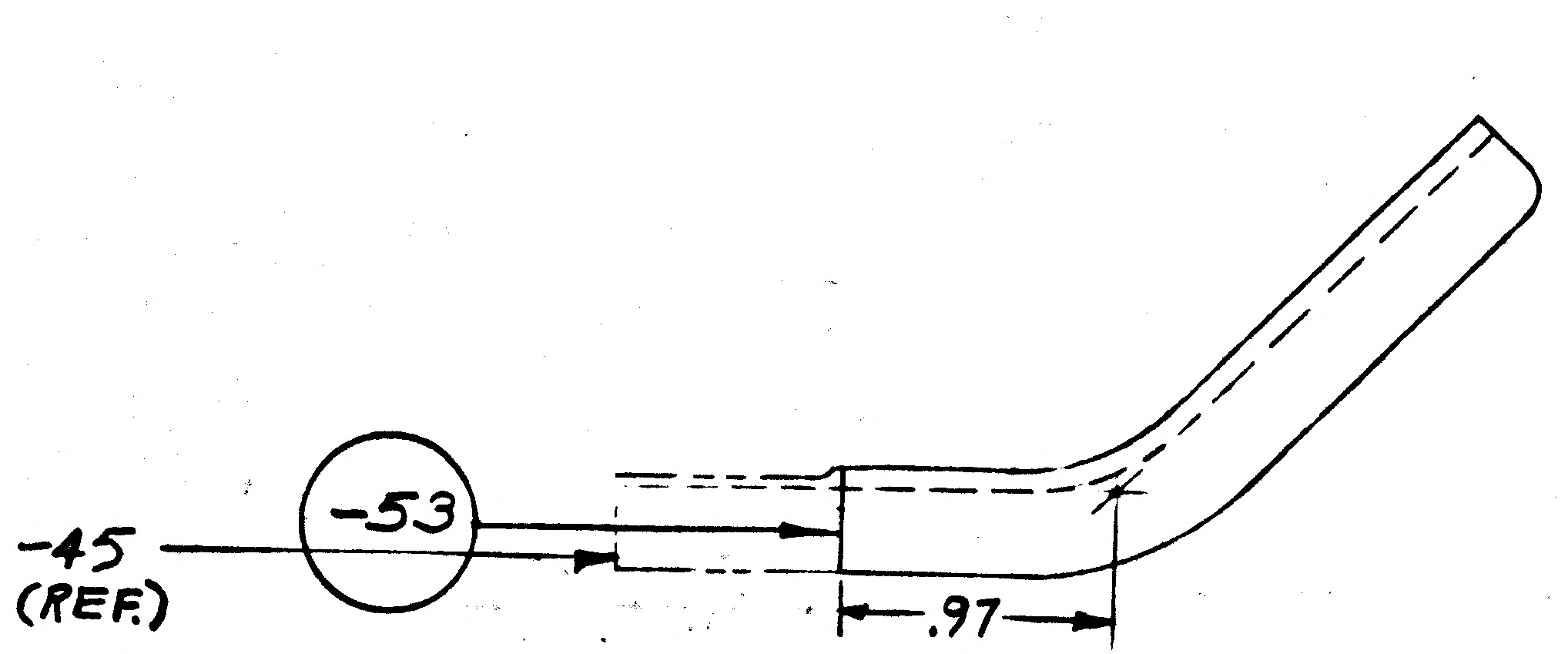


.312 R(3)
.097-.102(3 HOLES)
.625
.625
.625
.312R
-51
1.52
1.25

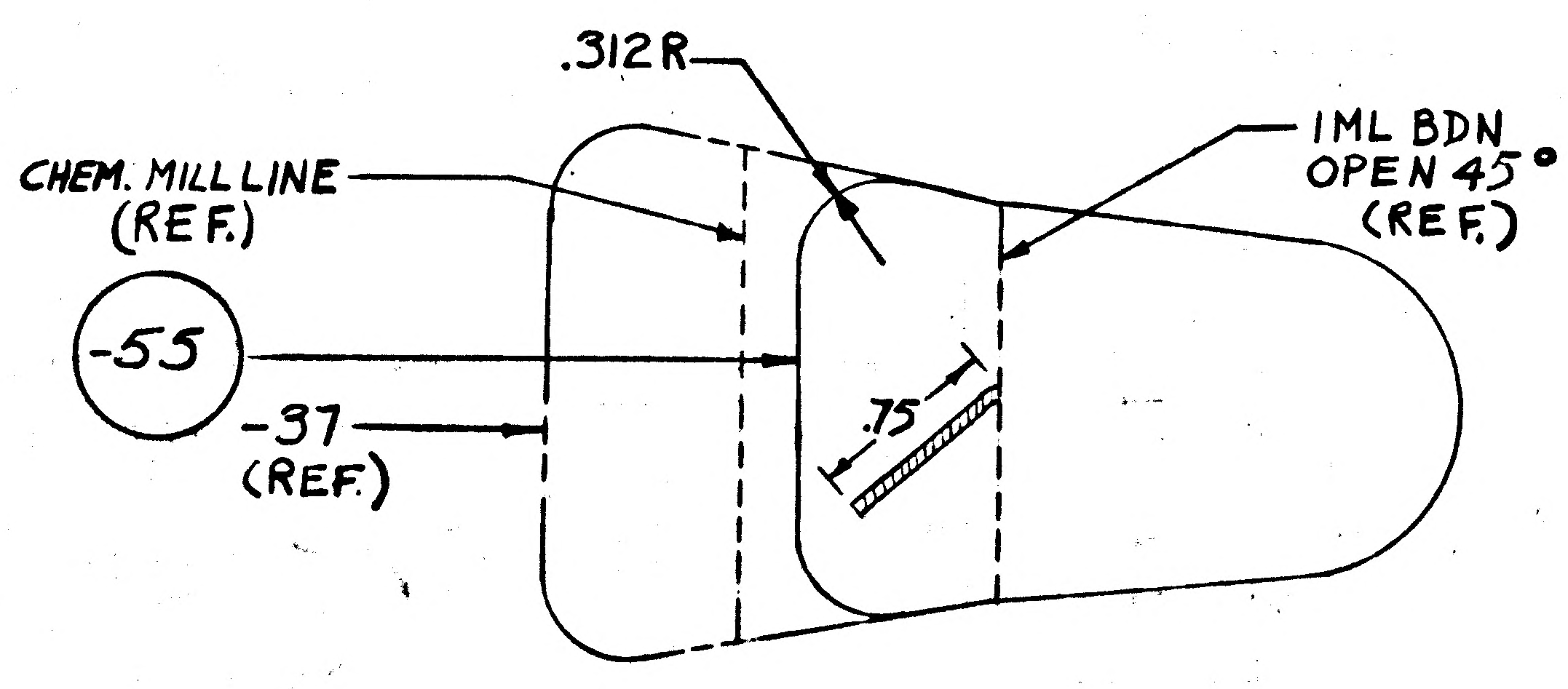


.781
-51(REF)
45°
1.72
.071(REF)

CREATE -51 AS SHN.
CLIP - AL. ALY. SHT. 7075
QQ-A-250/12 H.T. T6
B.R. .156



CREATE -53 IDENTICAL
TO -45 EXCEPT AS SHN.



.312R
CHEM. MILL LINE
(REF.)
IML BDN
OPEN 45°
(REF.)
-55
-37
(REF.)
.75

CREATE -55 IDENTICAL
TO -37 EXCEPT AS SHN.

ADD -55, -53 & -51 TO F/D B/M & M/B, N/A LDW280-60527
1 EA. REQ'D FOR LM 10(40) THRU LM 14(44)

IN M/B FOR-28 ADD N/A LDW 280-60527 1 EA. REQ'D FOR LM10(40) THRU LM14(44)

NOTE: DIMEN INS SHOWN
ARE FOR E.O. PURPOSES ONLY

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3994 PKG. 92	(5)
REASON FOR EO TO PROVIDE CLIPS FOR THERMAL SHIELD IN QUAD II.		DESCRIPTION OF EO IN F/D, M/B & B/M ADDED -53, -51 & -55 IN M/B FOR-28 ADDED N/A LDW280-60527		GAEC EO RELEASE VK 3/12/70

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU LM-14(44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D		DATE	2-11-70			2/11/70	2/11/70		2-11-70	2-11-70
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP WB	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIPS - THERMAL SHIELD ~ CORNER POSTS	LDW280-18065	E3

CDR 021170

ISSUED BY A. GROSS / D. RAGAS SECTION V.D.I GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1844
CONTROL INFO NO. LDW2. 'B9969

FOR DWGS LISTED BELOW DELETE LTA-3DR/1 & LTA-11 (23) EFF.
FROM DASH NO.S * WITH N/A LDW280-60587.

DWG. NO. & DASH NO'S.	CHANGE NO.	DWG. NOMENCLATURE	N/A
✓ LDW 280-17959-11-1,-13,-15	B6	SEE DWG.	LDW280-60587
✓ LDW280 -17958-21,-13	B8		
✓ LDW280 -17877-19,-17	B7		
✓ LDW280 -17750-11,-13,-15	C1		
✓ LDW280 -17422-13	B8		
✓ LDW280 -18316-15,-16,-21,-23,-25,-27, -29	A5		
✓ LDW280 -18065-43	E4		
LDW280 M17603-1	A6		
LDW280 M17291-1	B5		
LDW280 M17290 -1	A6	SEE DNG.	LDW280-60587

* APPLICABLE DASH NO.S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 78 (5)

REASON FOR EO: DETAIL PARTS NO LONGER REQ'D FOR LTA-11 (23) & LTA-3DR/1 (460)
UPPER DECK PLUMBING NOT ON TEST ARTICLES

DESCRIPTION OF EO: FOR DWG & DASH NOS * DELETED LTA-3DR/1(460) & LTA-11(23) EFF.

GAEC EO RELEASE: VK 2/17/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1 (460)	
		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY							
DATE	2-16-70			2/16/70	2/16/70		2/16/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO. 1844

021970
ISSUED BY A. GROSS / D. RAGAS X87222 SECTION V.D.I GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18065 EO NO. E5
CONTROL INFO NO. LDW280C0419

FOR -43
ADD LM-10(40) THRU LM-14(44) EFFECTIVITY
N/A LDW280-60570 2/MOD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG 67

REASON FOR EO: REDESIGN CONNECTOR BRACKET TO PREVENT ECA POTTING FAILURE

DESCRIPTION OF EO: FOR -43 ADDED LM-10(40) THRU LM-14(44) EFF N/A LDW280 -60570

GAEC EO RELEASE: ⓡ

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

APPROVED BY							
DATE	5-5-70	THERMO		5/5/70	5/5/70		5/5/70	5/6/70
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIPS D/S - THERMAL SHIELD-CORNER POSTS RH SIDE	LDW280-18065	E5

CDR 5/5/70
ISSUED BY G. BARNES / G. HANSMANN x 87222 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18065		EO NO. E6
CONTROL INFO NO. LDW280C 1352		

IN F/D, B/M ¢ M/B

RESTRICT -53 CLIP EFF: LM-13(43) ¢ LM-14(44) WAS LM-10(40) THRU LM-14(44)

EFF LFM 666 LM-10(4[illegible]) ¢ LM-[illegible] (4[illegible])

LM-12(4[illegible]) THRU LM-14(4[illegible]).

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD5797 PKG 50

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO CLEAR LREA ELEC. LINE	IN F/D, B/M ¢ M/B RESTRICTED -53 CLIP EFF: LM-13(43) ¢ LM-14(44) WAS LM-10(40) THRU LM-14(44)	3/18

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS										
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			-53	DATE	3-18-71			3/18/71	3/18/71		3/18/71	3-19-71
LM	LFM 666	LM-10 (40) ¢	LM-11 (41)	REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONF
		LM-12 (42)		PRIORITY: C	DRAWING TITLE: CLIPS - THERMAL SHIELD - CORNER POST							DRAWING NO.: LDW280-18065				EO NO.: E6

APPROVED BY

3/19/71
ISSUED BY R CLARK/G. HANSMANN 8-7222 SECTION VD1 GROUP NO. 0335 PL 025

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NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 507	LDW280-55525	LTA-5R(159)	1 EA
LM	LDW280-23544	LTA-3DR(46)	
	LDW280-60544	LTA-3DR/1(460)	
		LTA-11(23)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
	LDW280-60544	LM-10(40)	
	LDW280-23544	LM-9 (39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
		LM-3(33)	
	LDW280-23544	LM-2(32)	
	LDW280-25544	LM-1(31)	
LM	LDW280-25544	LTA-5(15)	1 EA

PART NO. LDW280-18066-13&-15 | GAEC SCH NO.

LDW280-18066 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 507	LDW280-55518	LTA-5R(159)	1
LM	LDW280-23541	LTA-3DR(46)	1
	LDW280-60541	LTA-3DR/1(460)	1
		LTA-11(23)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
	LDW280-60541	LM-10(40)	1
	LDW280-23541	LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
	LDW280-23541	LM-4(34)	1
	LDW280-52541	LM-3(33)	1
	LDW280-52541	LM-2(32)	1
	LDW280-25541	LM-1(31)	1
LM	LDW280-25541	LTA-5(15)	1

PART NO. LDW280-18066-11 | GAEC SCH NO. 50.2

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A			A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	–	GRUMMAN REL INFO 1-21-70		
LAST DASH NO. USED	-15	PRIM NO.	LE601	
		207	MP-5	7-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/64 ~ ±.010 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100 | LINE ITEM I | DOCUMENTATION TYPE II

DRAWN BY	G.W. H.	RELIAB	
LAYOUT BY	HANSMANN		
CHECKED BY			
GP LDR	7/29/66		
V.D.I.	8-2-66		
STRUCT.	J.J.B. W/H 8/5/66	PROJ ENGR	R.M. Carbee EV 8/7
STRUCT.	Hilderman 8/5	REL GROUP	Botti 8-10-66
WEIGHTS	8-9		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TEE
DESCENT STAGE ~ PROP. FEED SYSTEM ~
LOWER DECK ~ TRUSS SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18066 | A
SCALE NONE | SHEET 1.00 OF 4 | Ⓐ

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED SH. 3.00 NO CHG - LAST REV. NO CHG. SH. SIZE D WAS J - . ..SMALL 6-25-70						
A	1	1.00 1.10						LE0280-328	FOR-11, -13 & -15, ADDED LM-7 THRU LM-15 EFF ADDED SH. 1.10	LM-7 THRU LM-15	NOT	REQD	M. SMALL 6-25-70		
	2	1.00					✓	LE0280-547 LCD 1242	IN MOD. BLOCK FOR-11, -13 & -15 ADDED LTA-3DR EFF	LTA-3DR					
	3	1.00				✓		LE0280-1332 LCD 3587 CCA 1821	DELETED LM-15 EFF FROM-11, -13 & -15	LM-15		-11, -13 -15			
	4	1.00				✓		LE0280-1649 LCD 3890	FOR-11, N/A LDW280-60541 WAS LDW280-23541 FOR LM-10 THRU LM-14. ADDED LTA-3DR/1 & LTA-11 EFF	LM-10 THRU LM-14 LTA-3DR/1 LTA-11	NOT	REQD			
	5	1.00				✓		LE0280-1676 LCD 3890	FOR-13 & -15, N/A LDW280-60544 WAS LDW280-23544 FOR LM-10 THRU LM-14, ADDED LTA-11 & LTA-3DR/1 EFF.						
	6	1.00		LFM 507		✓		LE0280-1761 LCD 3890	FOR-11, -13 & -15, ADDED LTA-5/R EFF FOR N/A LDW280-55518 & LDW280-55525	LTA-5/R					
	7	3.00				✓		EOA7 LCD 3890	ON -15, DIM. 9/16 WAS 5/8 & 7/16 WAS 1/2	LM-11 THRU LM-13	✓				
	8	1.00		Ⓡ		✓		LCD 5414	ON-11, -13 & -15 REMOVED LM-14 S Szalwinski 7-16-70 F.Z.	LM-14		-11, -13 -15	7/21/70 RAL	F. Zu[illegible] 6-26-70	Thompson 7-2[illegible]-70

CHG APPROVED	LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS
	A	7/17/70	PH 7-17-70		WB 7/20/70	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18066	A
SCALE NONE		SHEET 1.10	

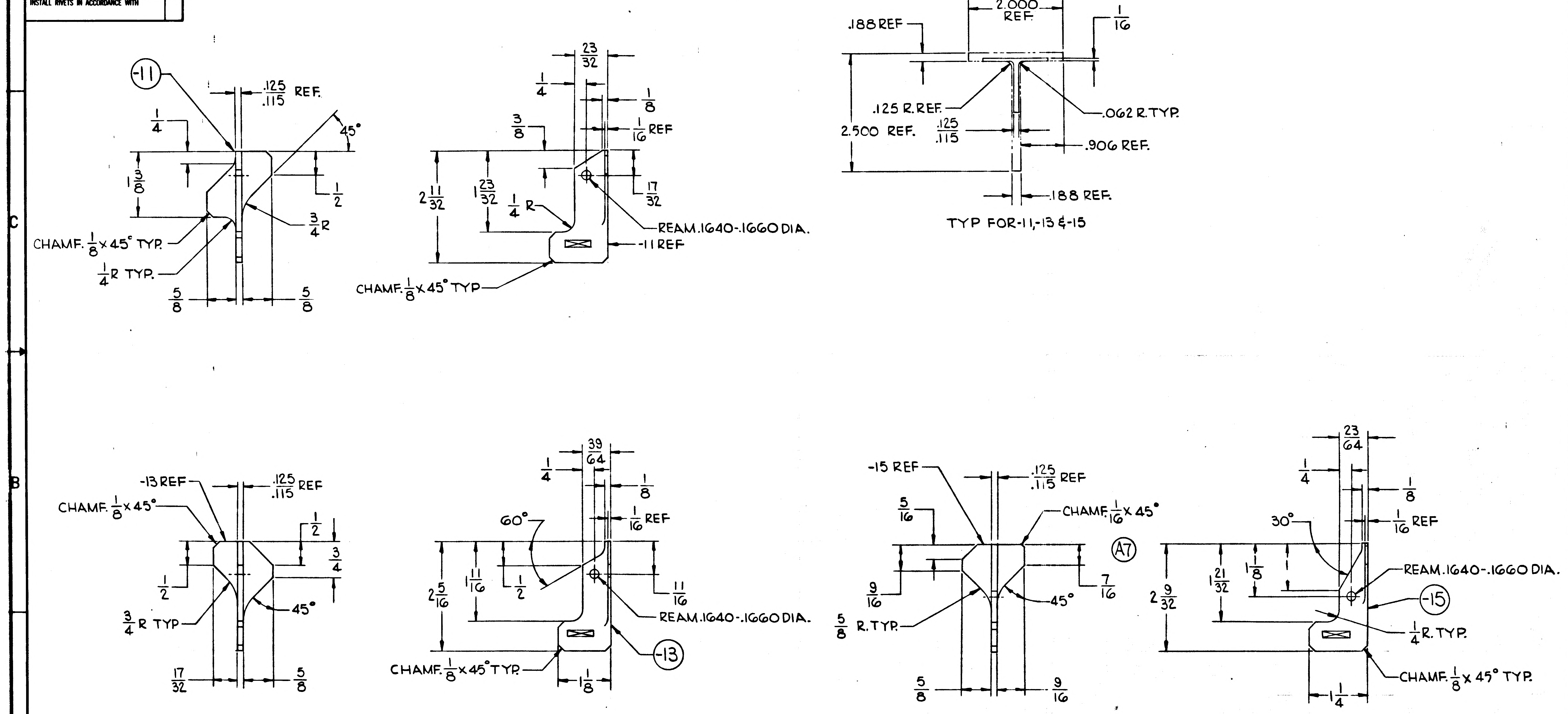
ENG 77.16 3-66

01

NAS 9-1100

LDW280-18066 A

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	


-11
.125/.115 REF.
1/4
45°
1 3/8
1/2
3/4 R
CHAMF. 1/8 × 45° TYP.
1/4 R TYP.
5/8
5/8
23/32
1/4
1/8
3/8
1/16 REF
2 11/32
1 23/32
1/4 R
17/32
REAM .1640-.1660 DIA.
-11 REF
CHAMF. 1/8 × 45° TYP
2.000 REF.
.188 REF
1/16
.125 R. REF.
.062 R. TYP.
2.500 REF.
.125/.115
.906 REF.
.188 REF.
TYP FOR -11, -13 & -15
-13 REF
.125/.115 REF
CHAMF. 1/8 × 45°
1/2
3/4
1/2
3/4 R TYP
45°
17/32
5/8
39/64
1/4
1/8
60°
1/16 REF
2 5/16
1 11/16
1/2
11/16
REAM .1640-.1660 DIA.
CHAMF. 1/8 × 45° TYP.
-13
1 1/8
-15 REF
.125/.115 REF
5/16
CHAMF. 1/16 × 45°
A7
9/16
7/16
45°
5/8 R. TYP.
5/8
9/16
23/64
1/4
1/8
30°
1/16 REF
2 9/32
1 21/32
1 1/8
REAM .1640-.1660 DIA.
-15
1/4 R. TYP.
CHAMF. 1/8 × 45° TYP.
1 1/4

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18066	A
SCALE FULL		SHEET 3.00	

3 SUPERSEDES LDW280-18066 2 NO CHG. 8-10-66

ENG 73.3 REV. 3-67

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18066-15	E	TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE*68003x2⅝	FP	88	
								LDW280-18066-13	E	TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE*68003x2⅝	FP	88	
								LDW280-18066-11	E	TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE*68003x2⅝	FP	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						FP	ZYGLO	MIL-I-6866

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18066

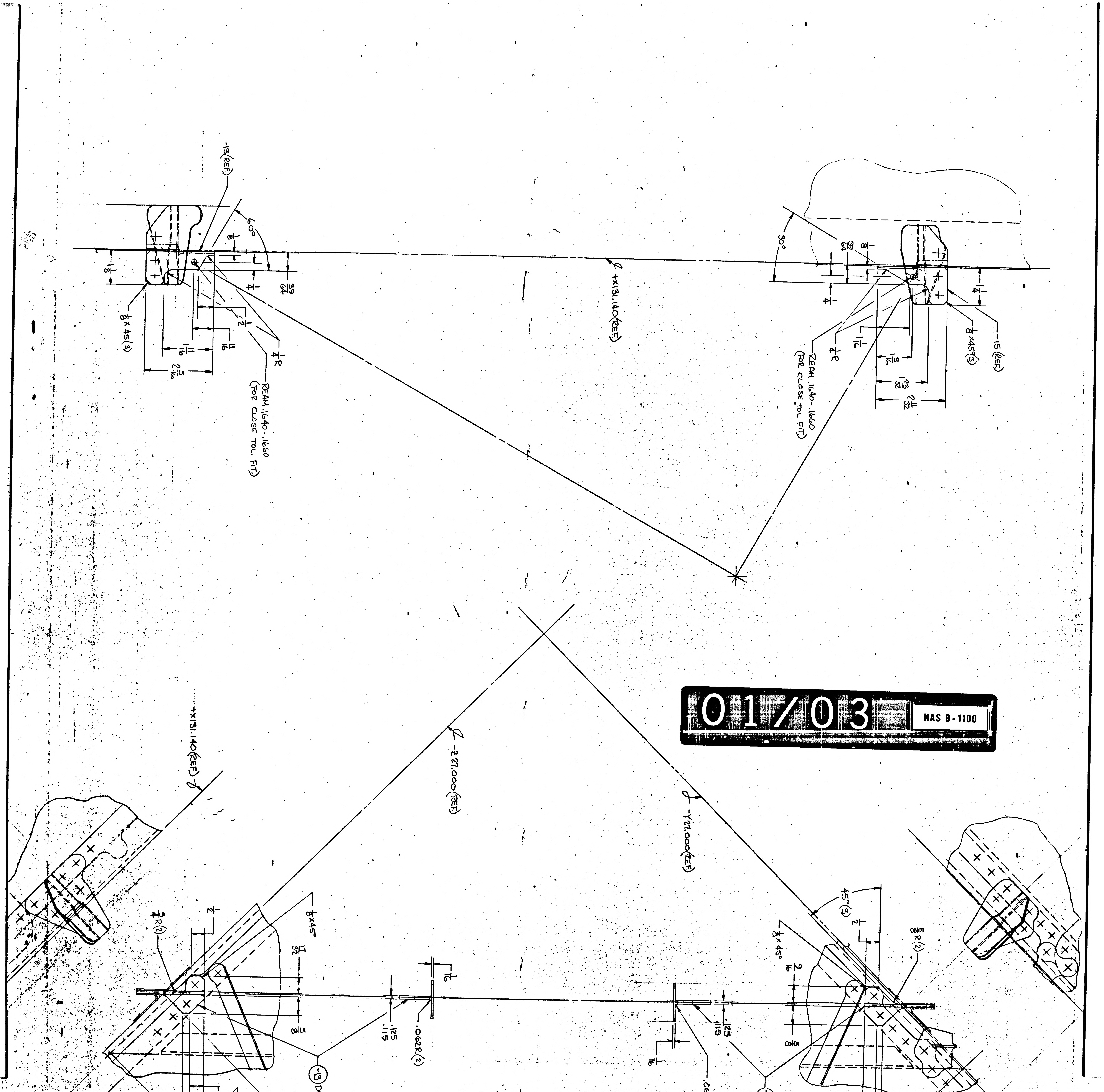
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

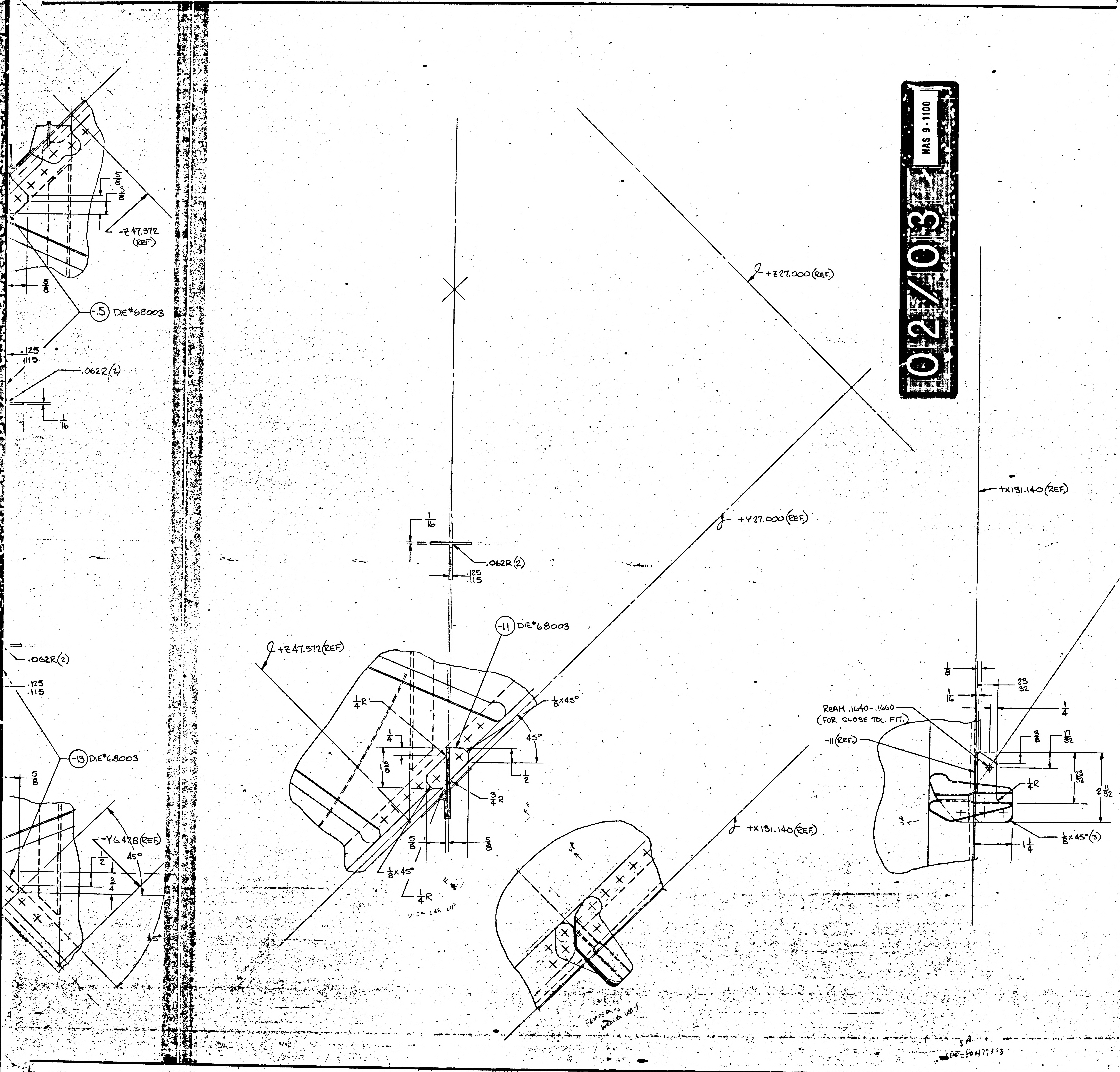


-13(REF)
60°
1/8
1/8
39/64
1/4
1/8 x 45°(3)
11/16
11/16
1/2
2 5/16
1/4 R
REAM .1640-.1660 (FOR CLOSE TOL. FIT)
+X131.140(REF)
30°
33/64
1/8
1/4
1 1/4
-15(REF)
1/8 x 45°(3)
1/4 R
1 1/16
1 3/16
1 23/32
2 11/32
REAM .1640-.1660 (FOR CLOSE TOL. FIT)
+X131.140(REF)
-Z27.000(REF)
-Y27.000(REF)
3/4 R(2)
1/2
1/8 x 45°
17/32
5/8
-13
1/16
.125 .115
.062R(2)
1/16
.125 .115
45°(3)
1/2
1/8 x 45°
9/16
5/8
.062R(2)

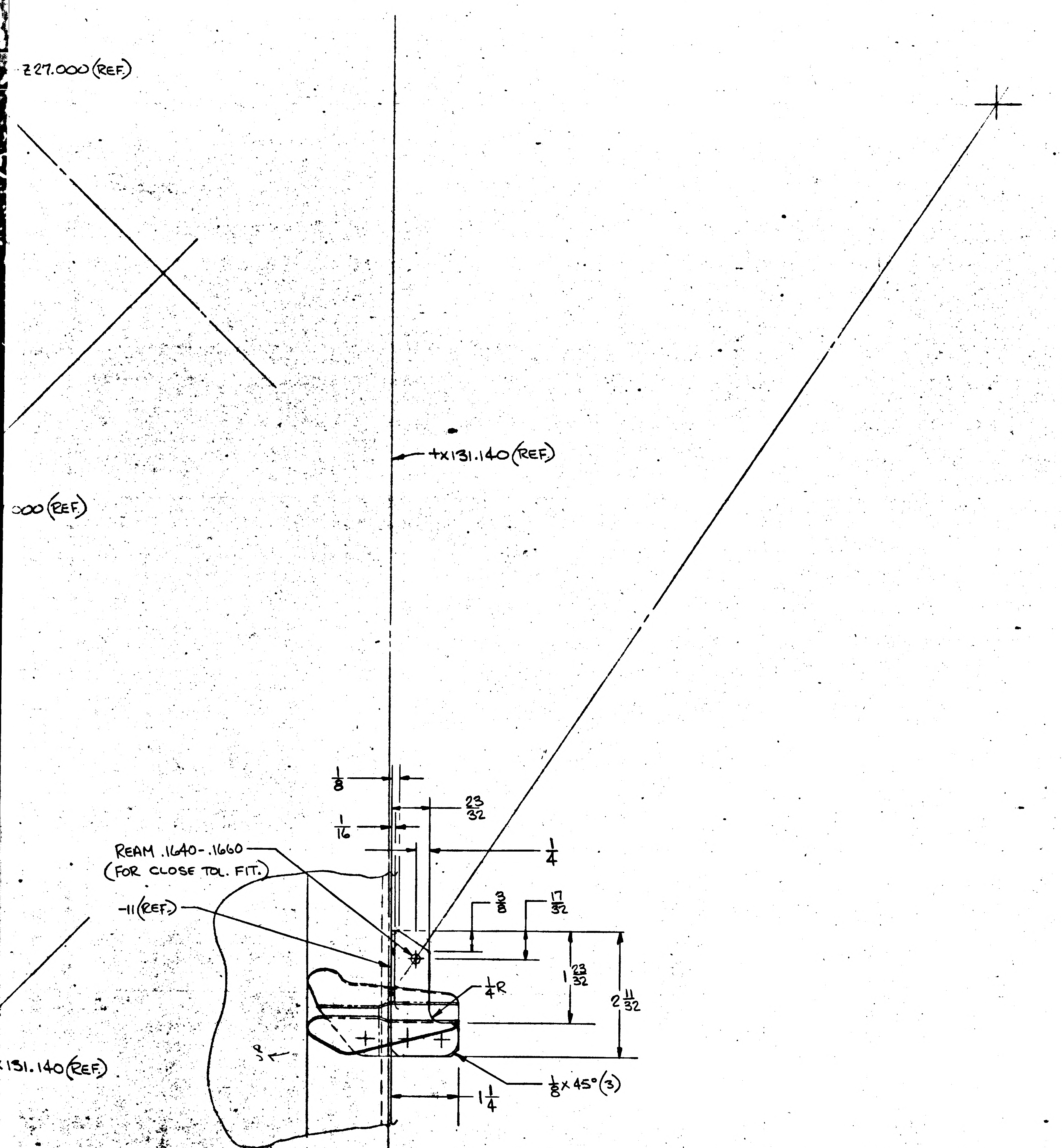
01/03 NAS 9-1100

02/03

NAS 9-1100



-Z 47.572 (REF)
-15 DIE#68003
.125
.115
.062R (2)
1/16
5/8
3/8
.062R (2)
-13 DIE#68003
-Y6.428 (REF)
45°
1/2
3/4
45°
℄ +Z27.000 (REF)
℄ +Y27.000 (REF)
1/16
.062R (2)
.125
.115
-11 DIE#68003
℄ +Z47.572 (REF)
1/4R
1/8x45°
1/4
1 3/8
45°
1/2
3/4R
5/8
5/8
1/8x45°
1/4R
VIEW LKG UP
℄ +X131.140 (REF)
FLIPPED WRONG WAY
+X131.140 (REF)
REAM .1640-.1660
(FOR CLOSE TOL. FIT.)
-11 (REF)
1/8
1/16
23/32
1/4
3/8
17/32
1 23/32
2 11/32
1/4R
1/8x45° (3)
1 1/4



Q3/03

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	✓
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 ▽ SURFACE ROUGHNESS INCLUDING REAMED HOLES - PER MIL-STD-10	✓
200 ▽ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	✓
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

NOTES:
1- LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.
2- ALL INFORMATION NOT REQUIRED TO MANUFACTURE LDW 280-18066-11, -13 & -15 IS REFERENCE INFORMATION ONLY.

LDW280-18066

LDW280-18066

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-18066	
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

THIS IS AN ORIGINAL DRAWING

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG NO. LEO280		EO NO. 328
CONTROL INFO NO. LDW280A-1040		

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS * THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13( ), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER *	CHANGE NUMBER	TITLE
LDW280 -17926	A1	SEE DRAWING
-17927	B1	
-17929	B1	
-17932	A2	
-17938	B2	
-17941	B1	
-17943	A3	
-17948	A1	
-17949	A1	
-17950	A2	
-17958	B1	
-17959	A2	
-17962	B1	
-17966	B1	
-17970	B1	
-17973	A1	
-17977	A1	
-17981	A1	
-17984	B1	
-17985	A2	
-17989	A2	
-17992	B1	
-17997	A1	
-17998	C1	
-17999	A6	
-18035	A6	
-18036	A1	
-18038	A6	
-18046	A4	
-18050	A1	
-18051	A1	
-18062	A1	
-18063	A1	
-18065	B3	
LDW280 -18066	A1	SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG			GAEC EO RELEASE
							1921

REASON FOR EO	DESCRIPTION OF EO
ADDITIONAL REQUIREMENTS	FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D		DATE					11/7/66			10/15/66
REVISE DWG	RECORD EO	REWORK	SCRAP		V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTER	LEO280	

ISSUED BY M. GREY / J. STRAKASCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280

01

NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 547

CONTROL INFO NO. LDW2E A-6136

FOR ALL DASH NO.* ON THE FOLLOWING DWGS WHICH HAVE LM-6 EFF ADD LTA-3D|R EFF QTY & N|A TO REMAIN THE SAME AS ON LM-6

DRAWING *	TITLE	CHANGE NO.
LDW280-17787 ✓	SEE DWG	B2
-17792 ✓		B5
-17797 ✓		A2
-17830 ✓		B1
-17841 ✓		A8
-17842 ✓		B1
-17843 ✓		A2
-17844 ✓		A2
-17845 ✓		A2
-17846 ✓		A2
-17850 ✓		B2
-17856 ✓		A2
-17874 ✓		B2
-17882 ✓		B1
-17883 ✓		B3
-17884 ✓		B2
-17885 ✓		B3
-17886 ✓		C4
-17887 ✓		B2
-17891 ✓		A3
-17906 ✓		B1
-17943 ✓		B2
-17948 ✓		B1
-17958 ✓		B2
-17960 ✓		B2
-17973 ✓		A3
-17977 ✓		B1
-17981 ✓		B1
-18064 ✓		B1
-18065 ✓		C1
-18066 ✓		A2
-18067		A3
-18068		A2
-18089		B2
-18090		B4
-18137		B2
-18195		C2
LDW280 -18202		B2
LDW280P 18133		A2
LDW 280-54684		A2
LDW 330-52056		B3
	SEE DWG.	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

LCD19-1242

2 C

REASON FOR EO: FAILURE OF LTA-3D IN STATIC TEST

DESCRIPTION OF EO: IN M/B FOR * ADDED LTA-3DR EFF

GAEC EO RELEASE: JK 4/4/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R (46)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		
/		NOT	REQD	3/28/67			3/28/67	3/31/67		3.30.67	4/1/67	
				5	YDI							

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO280

EO NO.: 547

ISSUED BY G. BARNES/J. STRAKOSCH X1153 SECTION YDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1332
CONTROL INFO NO. LDW280B 7422

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18038 ✓	B4 ✓	SEE DWG
-18049 ✓	B2	↑
-18050 ✓	B3	
-18051 ✓	B5	
-18054 ✓	B2	
-18064 ✓	B3	
-18065 ✓	D2	
-18066 ✓	A3	
-18067	A4	↓
LDW280-18068	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG. 8-9 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: HF 4/12/

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	4/9/69			4-2-69	4/8/69		4/9/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1332

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1649
CONTROL INFO NO. LDW280B7768

FOR ✻: N/A LDW280-60541 WAS LDW280-23541 FOR LM-10(40) THRU LM-14(44), ADD LTA-11(23) & LTA-3DR/1(460) EFFECTIVITY FOR N/A LDW280-60541 (QTY REMAINS THE SAME AS THAT OF LM-10(40)).

PART NO. ✻	DWG NOMENCLATURE	CHANGE NUMBER
LDW280-17419-11,-12,-13,-14,-17	SEE DWG	B4
-17746-11	↑	A4
-17906-13		B3
-		
-18066-11		A4
-18067-21 & -23		A5
-18638-1,-2,-3	↓	A3
	SEE DWG	
LDW280-18688-19	SEE DWG	B6

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3890 PKG. 57 1, 3, & 4 (5)

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED PROP. TANKS

DESCRIPTION OF EO: FOR ✻ N/A LDW280-60541 WAS LDW280-23541 FOR LM-10(40) THRU LM-14(44) & ADDED LTA-3DR/1 (460) & LTA-11(23) EFF.

GAEC EO RELEASE: SUB 8-21-69 | ✻ 8/29/69

MODEL	PROCURING ACTIVITY NO. EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
LM		LM-14(44), LTA-11(23)	
LM		& LTA-3DR/1 (460)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQD — REWORK | SCRAP

APPROVED BY							
DATE	8-19-69			8/19/69	8/20/69		8/21/69
VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1649

COR: 10-31-69
ISSUED BY TIENKEN/THORJUSEN X87222 7-30-69 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 ● EO NO. 1676
CONTROL INFO NO. LDW280B7745

FOR ✱: N/A LDW280-60544 WAS LDW280-23544 FOR LM-10(40) THRU LM-14(44), ADD LTA-11(23) & LTA-3 DR/1 (460) EFFECTIVITY FOR N/A LDW280-60544 (QTY REMAINS THE SAME AS THAT OF LM-10(40)).

PART NO. ✱	DWG NOMENCLATURE	CHANGE NUMBER
✓ LDW280-17786-19	SEE DWG	B4
✓ -17787-15,-17		B4
✓ -18066-13,-15		A5
-18067-19		A6
LDW280-18068,-15,-17,-19	SEE DWG	A4

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3890 PKG. 55 PG 1-3,4,4 (5)

REASON FOR EO: ~~REDESIGN OF LOWER DECK S~~ ~~FOR EXTENDED PROP. TANKS~~

DESCRIPTION OF EO: FOR ✱: N/A LDW280-60544 WAS LDW280-23544 FOR ~~LM-10(40)~~ THRU ~~LM-14(44)~~, ADDED LTA-11(23) & LTA-3DR/1(460) EFFECTIVITY,

GAEC EO RELEASE (6): SAB 8-25-69; JK 9/19/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
LM		LM-14(44), LTA-11(23)	
LM		& LTA-3DR/1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓ REVISE DWG	RECORD EO	NOT REQD REWORK / SCRAP	APPROVED BY								
			DATE	8-16-69			8/16/69	8/16/69		8/19/69	8/19/69
				VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GRP~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1676

10-18-69 ISSUED BY J. LANG/P. THORJUSEN X87222 7-30-69, SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 EO NO. 1761
CONTROL INFO NO. LDW280B9285

FOR *, ADD LTA-5/R EFF ~ FOR N/A NOTED △.

DWG NO. *	DASH NO.*	NEXT ASSY. △	DWG TITLE	CHG NO.
✓ LDW280-18970	-11, -13 ė -15(1 EA)	LDW200-55524	SEE DWG	A1
✓ -17419	-11, -12, -13, -14 (1 EA); -17(2)	-55518		B5
✓ -17746	-11(1)			A5
✓ -17906	-13(2)	-55518		B5
		-55519		
		-55524		
	-13(2)	-55525		
✓ LDW280-18066	-11(1)	-55518	SEE DWG	A6
	-13 ė -15 (1 EA)	LDW200-55525		

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 95	(5)

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR *, ADDED LTA-5/R EFF FOR N/A △

GAEC EO RELEASE: RS 11-18-9; JK 11/19/9

MODEL	EFFECTIVITY E ~~PROCURING ACTIVITY NO.~~ I	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM507	LTA-5/R(159)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS								
REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY						
✓		NOT REQ'D		DATE	11-18-69			11/18	11/18/69	
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG

PROJ ENGRG: 11/19/69; 11/19/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1761

CDR 12/05/69
ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

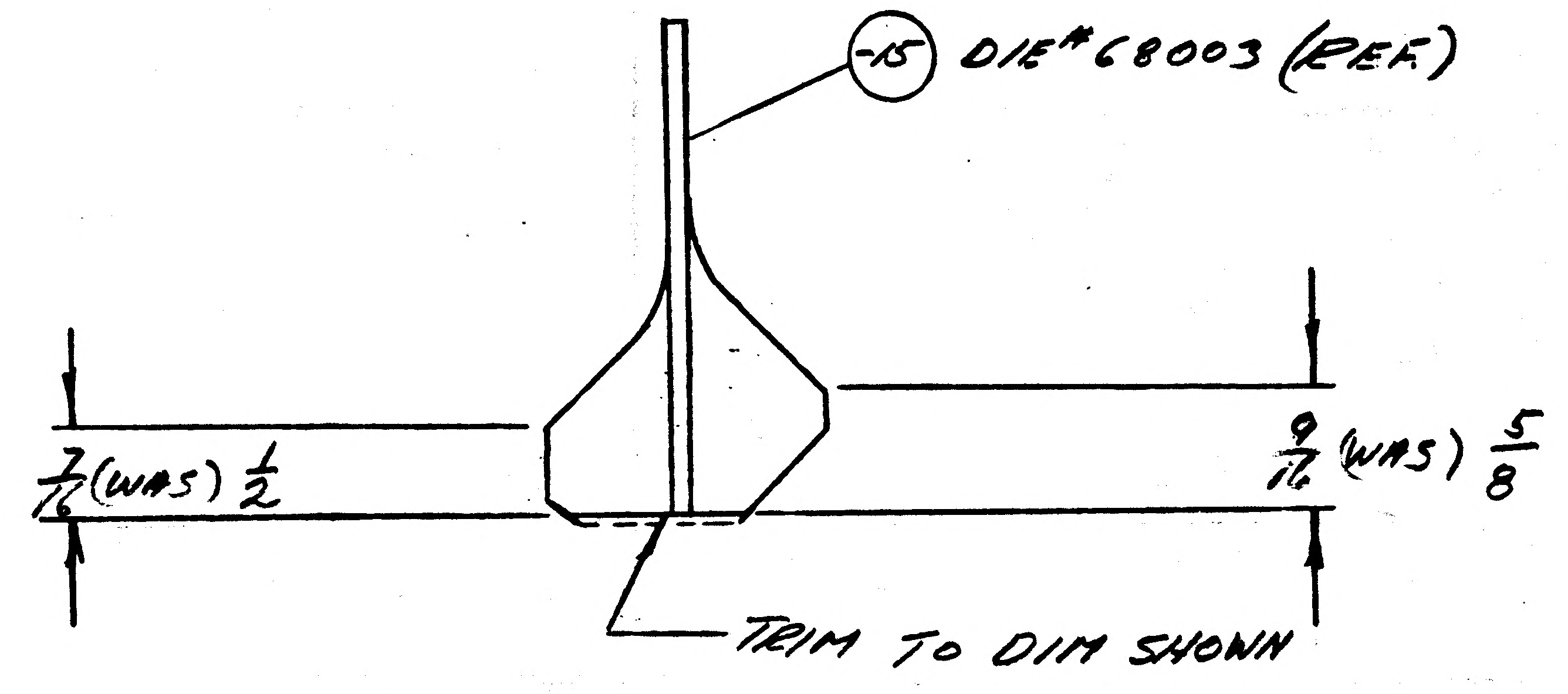
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18066
EO NO. A7
CONTROL INFO NO. LM-5-22824

ON-15



NOTE: BRUSH ALODINE NO 76 PER LSP14-9010
ON REWORKED AREA.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCO 3890

REASON FOR EO: TO ELIMINATE INTERFERENCE ON INSTR.

DESCRIPTION OF EO: ON-15 DIM. 9/16 (WAS) 5/8 & 7/16 (WAS) 1/2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM11(41)	
		THRU	
		LM13(43)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	RH				KC	CR	RH		
DATE	6-30-70			6/25/70	6/18/70	6/18/70	6-30-70	6/18/70
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	TEE - D/S - PROP FEED SYS. LOWER DECK - TRUSS SUPPORT	LDW280-18066	A7

ISSUED BY LIAISON, R. Grell, X86755 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18067

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23544	LEM-6 (36)	1
↕	↕	LEM-5 (35)	1
↕	↕	LEM-4 (34)	1
↕	↕	LEM-3 (33)	1
LEM	LDW280-23544	LEM-2 (32)	1
PART NO. LDW280-18067-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23541	LEM-6 (36)	1EA
↕	LDW280-23541	LEM-5 (35)	1EA
↕	LDW280-23541	LEM-4 (34)	1EA
↕	LDW280-52541	LEM-3 (33)	1EA
LEM	LDW280-52541	LEM-2 (32)	1EA
PART NO. LDW280-18067-15 &-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25541	LEM-1 (31)	1EA
LEM	LDW280-25541	LTA-5 (15)	1EA
PART NO. LDW280-18067-11 &-13		GAEC SCH NO. 50.2	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REL INFO		
LAST DASH NO. USED	-19	PRIM NO.	207	
		LE(001)	MP-8	7-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100		LINE ITEM I	DOCUMENTATION TYPE II
DRAWN BY	G.W.H.	WEIGHTS	Rabesh 8-9
LAYOUT BY	HANSMANN	RELIABILITY	
CHECKED BY			
GP LDR	J. Stalcoul 7/28/66		
V.D.I.	Paulson 8/2/66		
STRUCT	J.J.B. WJH 8/5/66	PROJ ENGR	R.M. Carbee (EV) 8/7
STRUCT	Hilderman 8/5	REL GROUP	Bott. 8-11-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE ~ PROP LINES SPT
FWD LWR DECK ~ R.H. INBOARD

SIZE	CODE IDENT NO.	
B	26512	LDW280-18067
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18067-19	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040x2 7/8 x 3 1/8	T6	88	
								LDW280-18067-17	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040x 3 1/8 x 3 1/4	T6	88	
								LDW280-18067-15	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040 x 3 1/4 x 3 1/4	T6	88	
								LDW280-18067-13	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040x2 3/4x 3 1/2	T6	88	
								LDW280-18067-11	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040x2 3/4x3 1/2	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

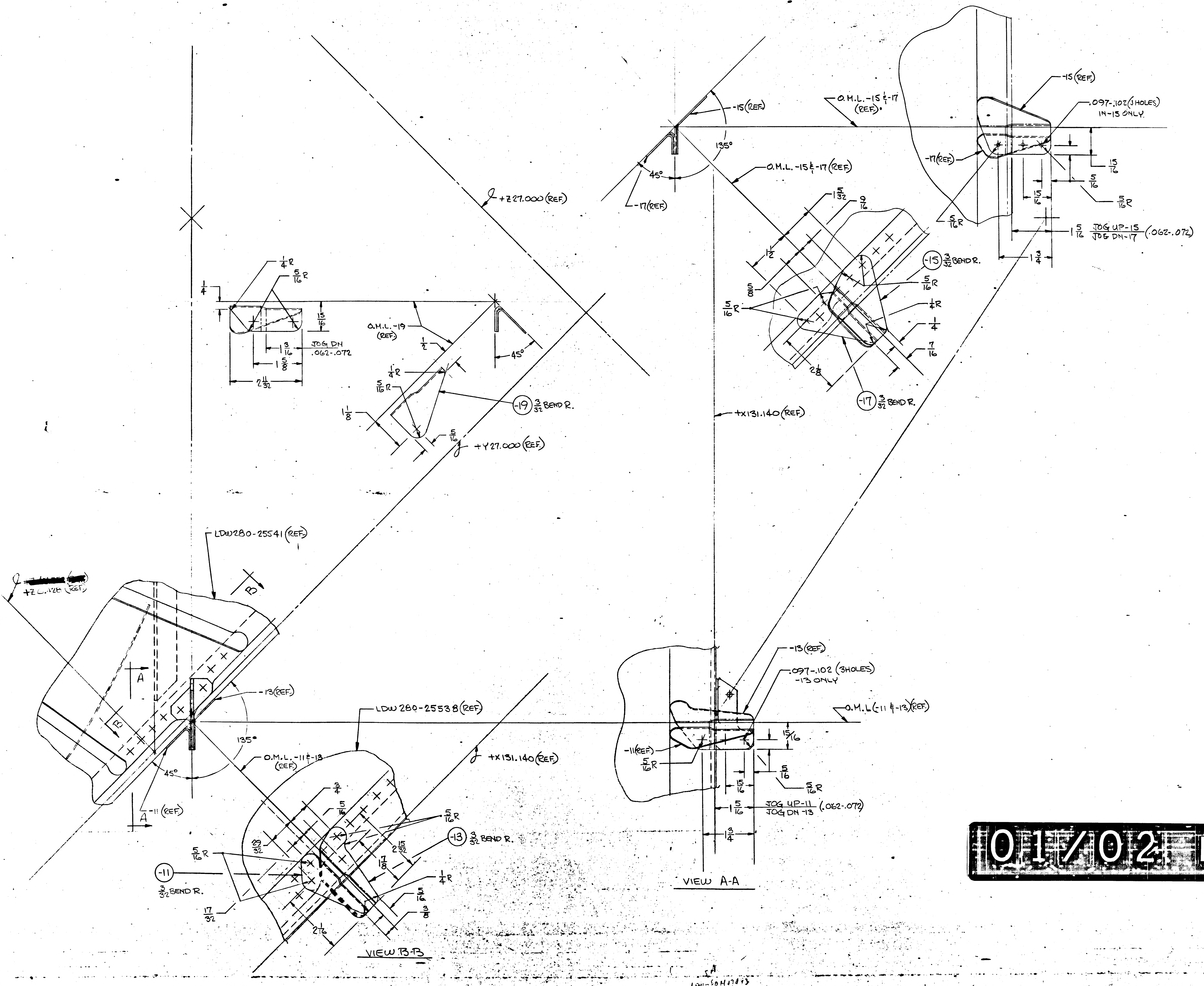
SIZE B | CODE IDENT NO. 26512 | LDW280-18067

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


-15(REF.)
O.M.L.-15 & -17 (REF.)
135°
45°
O.M.L.-15 & -17 (REF)
-17(REF)
-15(REF)
.097-.102(3HOLES) IN-15 ONLY
-17(REF)
15/16
5/16
15/16
5/16 R
5/16 R
1 5/16 JOG UP-15 / JOG DN-17 (.062-.072)
1 3/4
1 5/32
9/16
1 1/2
5/8
5/16 R
-15 3/32 BEND R.
5/16 R
1/4 R
1/4
7/16
2 1/8
-17 3/32 BEND R.
+X131.140(REF)
℄ +Z27.000(REF)
1/4 R
5/16 R
1/4
15/16
1 3/16 JOG DN .062-.072
1 5/8
2 11/32
O.M.L.-19 (REF)
1/2
45°
1/4 R
5/16 R
-19 3/32 BEND R.
1 1/8
5/16
℄ +Y27.000(REF)
LDW280-25541(REF)
B
A
B
-13(REF)
135°
45°
A
-11(REF)
LDW 280-25538(REF)
O.M.L.-11 & -13 (REF)
℄ +X131.140(REF)
3/4
5/16
5/16 R
29/32
2 15/32
-13 3/32 BEND R.
1 7/8
5/16 R
-11
3/32 BEND R.
1/4 R
5/16
3/8
17/32
2 1/16
VIEW B-B
-13(REF)
.097-.102 (3HOLES) -13 ONLY
O.M.L(-11 & -13)(REF)
-11(REF)
5/16 R
15/16
5/16
5/16 R
15/16
1 5/16 JOG UP-11 / JOG DN-13 (.062-.072)
1 3/4
VIEW A-A

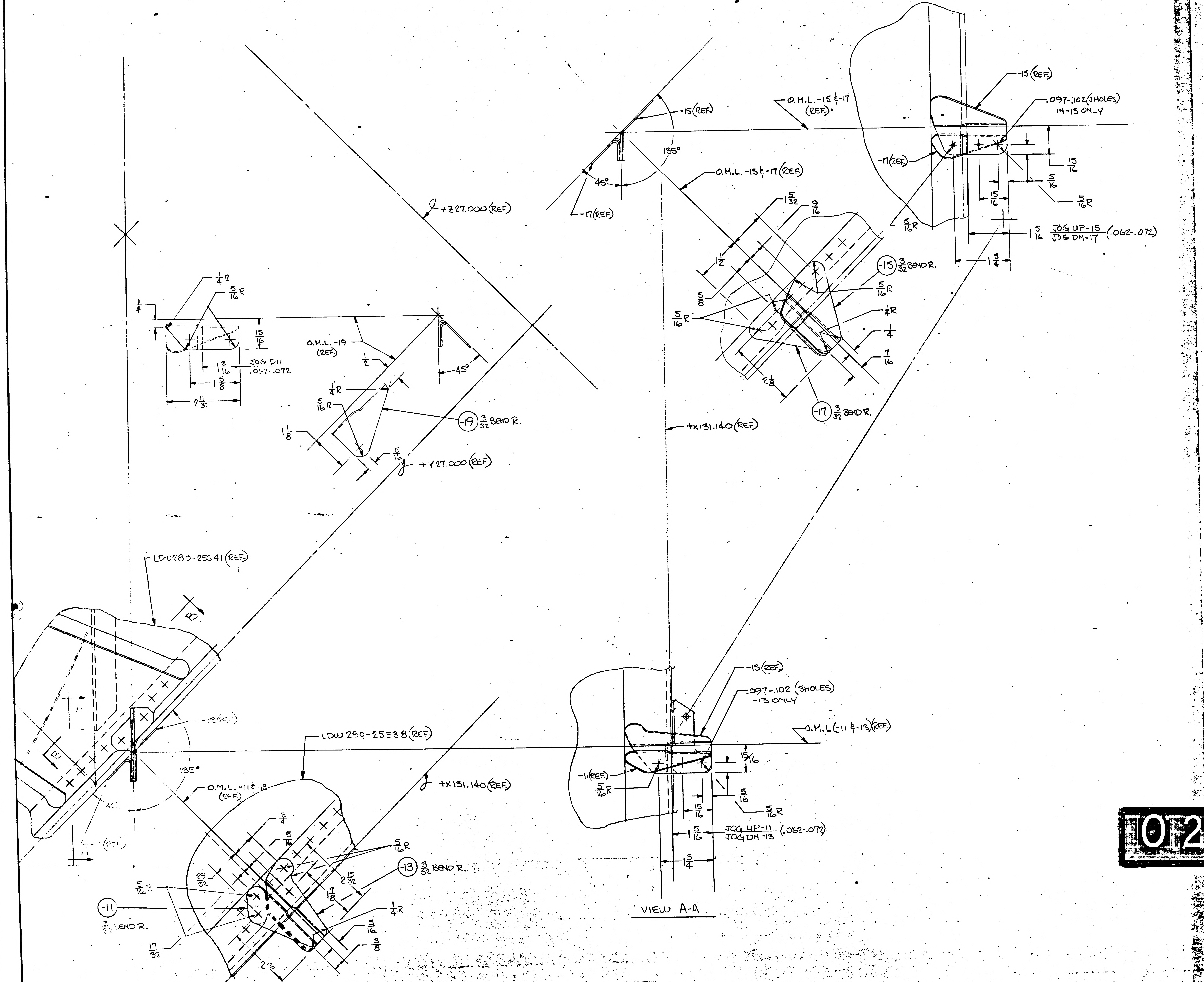
NOTES:
1- LAYOUT RELEASE - TO BE RE
PRODUCTION FORMAT.
2- ALL INFORMATION NOT REQ
MANUFACTURE LDW 280-
IS REFERENCE INFORMATION

01/02 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG

LEM	SIZE J	COD. IDENT NO. 26512
MODEL OR END ITEM	SCALE FULL	

THIS IS AN ORIGINAL


-15(REF.)
O.M.L.-15 & -17 (REF.)
.097-.102(3HOLES) IN-15 ONLY.
-17(REF.)
15/16
5/16
15/16
5/16 R
1 5/16 JOG UP-15 / JOG DN-17 (.062-.072)
1 3/4
5/16 R
-15(REF.)
135°
45°
-17(REF.)
O.M.L.-15 & -17(REF.)
℄ +Z27.000(REF.)
1 3/32
9/16
1 1/2
5/8
5/16 R
-15 3/32 BEND R.
5/16 R
1/4 R
1/4
7/16
2 1/8
-17 3/32 BEND R.
1/4 R
5/16 R
1/4
15/16
1 3/16 JOG DN .062-.072
1 5/8
2 11/32
O.M.L.-19 (REF)
1/2
45°
1/4 R
5/16 R
-19 3/32 BEND R.
1 1/8
5/16
℄ +Y27.000(REF.)
+X131.140(REF.)
LDW280-25541(REF.)
B
-13(REF.)
135°
LDW 280-25538(REF.)
O.M.L.-11 & -13 (REF.)
℄ +X131.140(REF.)
-11(REF.)
-13(REF.)
.097-.102 (3HOLES) -13 ONLY
O.M.L.(-11 & -13)(REF.)
15/16
-11(REF.)
5/16 R
5/16
15/16
5/16 R
1 5/16 JOG UP-11 / JOG DN-13 (.062-.072)
1 3/4
VIEW A-A
3/4
5/16
5/16 R
2 15/32
-13 3/32 BEND R.
17/8
1/4 R
5/16 R
29/32
-11 3/32 BEND R.
5/16
3/8
17/32
2 1/16
VIEW B-B

NOTES:
1- LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.
2- ALL INFORMATION NOT REQUIRED TO MANUFACTURE LDW 280-18067-11-13,-15,-17 & -19 IS REFERENCE INFORMATION ONLY.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⌧ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS-FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	✓
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

02/02

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE J	CODE IDENT NO. 26512	LDW280-[illegible]067
LEM MODEL OR END ITEM	SCALE FULL		SHEET

THIS IS AN ORIGINAL DRAWING

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18067
EO NO. A1
CONTROL INFO NO. LM-2-2879

IN FLD/DWG, B/M & MOD/BLK
DELETE -15 & -17 & REPLACE WITH -21 & -23
(-21 & -23 ARE THE OPPOSITES OF -15 & -17 RESPECTIVELY)

2

DETAIL SPEC REQ ☐ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ ☐

REASON FOR EO: FLANGE DIRECTIONS INCORRECT. IMPOSSIBLE TO INSTALL AT NEXT ASSEMBLY

DESCRIPTION OF EO: IN FLD, B/M & MOD/BLK, ADDED -21 & -23, WERE -15 & -17.

GAEC EO RELEASE: FK

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-2(32) THRU	
		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ ; RECORD EO

DISPOSITION OF PARTS: REWORK ; SCRAP -15 -17

APPROVED BY								
DATE	10/9				10-11-66	10-11-66	10-11-66	10-11-66
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: CLIP-DESCENT STAGE~PROP LINES SPT FWD LWR DECK~R.H. INBOARD
DRAWING NO.: LDW280-18067
EO NO.: A1

ISSUED BY LIAISON J. MALONEY X3604 SECTION V.D.I. GROUP NO. 335 PL 35 CMF

01 NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 547
CONTROL INFO NO. LDW280A-6136

FOR ALL DASH NO.* ON THE FOLLOWING DWGS WHICH HAVE LM-6 EFF ADD LTA-3D|R EFF QTY & N/A TO REMAIN THE SAME AS ON LM-6

DRAWING *	TITLE	CHANGE NO.
LDW280-17787 ✓	SEE DWG	B2
-17792 ✓		B5
-17797 ✓		A2
-17830 ✓		B1
-17841 ✓		A8
-17842 ✓		B1
-17843 ✓		A2
-17844 ✓		A2
-17845 ✓		A2
-17846 ✓		A2
-17850 ✓		B2
-17856 ✓		A2
-17874 ✓		B2
-17882 ✓		B1
-17883 ✓		B3
-17834 ✓		B2
-17885 ✓		B3
-17886 ✓		C4
-17887 ✓		B2
-17891 ✓		A3
-17906 ✓		B1
-17943 ✓		B2
-17948 ✓		B1
-17958 ✓		B2
-17960 ✓		B2
-17973 ✓		A3
-17977 ✓		B1
-17981 ✓		B1
-18064 ✓		B1
-18065 ✓		C1
-18066 ✓		A2
-18067 ✓		A3
-18068		A2
-18089		B2
-18090		B4
-18137		B2
-18195		C2
LDW280 -18202		B2
LDW280P 18133		A2
LDW 280-54684		A2
LDW 330-52056		B3
	SEE DWG.	

DETAIL SPEC REQ	CL II ENGRG CHG ✓	CL I ENGRG CHG	LC019-1242

REASON FOR EO: FAILURE OF LTA-3D IN STATIC TEST

DESCRIPTION OF EO: IN M/B FOR * ADDED LTA-3DR EFF

GAEC EO RELEASE: 2 C JK 4/4/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R (96)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE 3/28/67			JAB 3/28/67	MH 3/31/67		3-30-67	4/4/67
✓		NOT	RLQD	5 YDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 547

ISSUED BY G.BARNES/J. STRAKOSCH X1153 SECTION YDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1332
CONTROL INFO NO. LDW280B 7422

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO. ✓	CHANGE NO	DWG NOMENCLATURE
LDW280-18038 ✓	B4 ✓	SEE DWG
-18049 ✓	B2	
-18050 ✓	B3	
-18051 ✓	B5	
-18054 ✓	B2	
-18064 ✓	B3	
-18065 ✓	D2	
-18066 ✓	A3	
-18067 ✓	A4	
LDW280-18068	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 53 PG. 8-9 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: HF 4/12/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/4/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1332

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION YEH DES INT GROUP NO. 335 PL. 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1649
CONTROL INFO NO. LDW280B7768

FOR *: N/A LDW280-60541 WAS LDW280-23541 FOR LM-10(40) THRU LM-14(44), ADD LTA-11(23) & LTA-3DR/1(460) EFFECTIVITY FOR N/A LDW280-60541 (QTY REMAINS THE SAME AS THAT OF LM-10(40)).

[illegible]

PART NO. *	DWG NOMENCLATURE	CHANGE NUMBER
LDW280-17419-11,-12,-13,-14,-17	SEE DWG	B4
-17746-11		A4
-17906-13		B3
- ~~[illegible]~~		
-18066-11		A4
-18067-21&-23		A5
-18638-1,-2,-3		A3
	SEE DWG	
LDW280-18688-19	SEE DWG	B6

[illegible]

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3890 PKG. 57 1, 3, & 4 (5)

REASON FOR EO: REDESIGN OF LOWER DECKS' FOR EXTENDED PROP. TANKS

DESCRIPTION OF EO: FOR * N/A LDW280-60541 WAS LDW280-23541 FOR LM-10(40) THRU LM-14(44) & ADDED LTA-3DR/1(460) & LTA-11(23) EFF.

GAEC EO RELEASE: SUB 8-21-9 · 8/29/69

MODEL	PROCURING ACTIVITY NO. FI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
LM		LM-14(44), LTA-11(23)	
LM		& LTA-3DR/1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
✓ REVISE DWG	RECORD EO	NOT REQD (REWORK / SCRAP)	DATE	8-19-69			8/19/69	8/20/69	8/21/69	8/21/69
				VDI	SUPPORT	RELIAB. GROUP				

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1649

CDR: 10-31-69
ISSUED BY TIENKEN/THORJUSEN X87222 7-30-69 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT. NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 ● EO NO. 1676

CONTROL INFO NO. LDW280B7745

FOR *: N/A LDW280-60544 WAS LDW280-23544 FOR LM-10(40) THRU LM-14(44), ADD LTA-11(23) & LTA-3DR/1(460) EFFECTIVITY FOR N/A LDW280-60544 (QTY REMAINS THE SAME AS THAT OF LM-10(40)).

~~[illegible]~~

~~NOTE A [illegible]~~

PART NO. *	DWG NOMENCLATURE	CHANGE NUMBER
✓ LDW280-17786-19	SEE DWG	B4
✓ -17787-15,-17		B4
✓ -18066-13,-15		A5
✓ -18067-19		A6
LDW280-18068,-15,-17,-19	SEE DWG	A4

~~NOTE A [illegible] TO NEXT [illegible] NUMBER.~~

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3890 PKG. 55 Pg. 1-3,4,4 (5)

REASON FOR EO: ~~REDESIGN OF LOWER DECK S~~ ~~FOR~~ EXTENDED PROP. TANKS

DESCRIPTION OF EO: FOR *: N/A LDW 280-60544 WAS LDW280-23544 ~~FOR LM-10(40) THRU LM-14(44)~~, ADDED LTA-11(23) & LTA-3DR/1(460) EFFECTIVITY,

GAEC EO RELEASE: 6 | SHB 8-25-69 | JK 9/19/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
LM		LM-14(44), LTA-11(23)	
LM		& LTA-3DR/1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		NOT REQD	APPROVED BY								
			DATE	8-16-69				8/16/69	8/16/69		8/19/69 9/19/69
REVISE DWG	RECORD EO	REWORK / SCRAP		VDI	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1676

I 10-17-69
ISSUED BY J. LANG / P. THORJUSEN X87222 7-30-69 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1759
CONTROL INFO NO. LDW280B9286

FOR *, ADD LTA-5/R(159) EFF ~ FOR N/A NC TED △.

DWG NO *	DASH NO *	NEXT ASSY. △	DWG TITLE	CHG NO.
LDW280-18067	-21 & -23 (1EA)	LDW200-55518	SEE DWG	A7
	-19(1)	-55525		
-18760	-11,-12,-13,-16 & -17(1EA)	-55518		A2
	-11,-12,-14,-15,-17,-18, -19 & -20 (1EA)	-55519		
	-11,-12,-13,-17, -18 & -20 (1EA)	-55524		
	-11,-12,-13,-14,-15-16 -17,-18,-19 & -20(1EA)	-55525		
-18764	-11 & -13 (1EA)	-55525		A3
-18761	-12,-13,-14,-15,-16, -17,-18 & -19(1EA)	-55518		A2
	-11,-12,-13,-14,-17 & -18(1EA) & -15(2)	-55519		
	-11, -14, -15, -16, -17 & -18 (1EA)	-55524		
	-11,-12,-14,-17 & -18 (1EA), & -15 (2)	-55525		
-18762	-11, -13, & -14 (1EA)	-55518		A3
	-12,-13 & -14 (1EA)	-55519		
	-13(1)	-55524		
	-11,-12 & -13 (1EA)	-55525		
-18766	-11(1) & -13(2)	-55518		A1
		-55519		
		-55524		
	-11(1) & -13(2)	-55525		
LDW280-18763	-15 (1)	-55518	SEE DWG	A2
	-15 & -16 (1EA)	-55519		
	-15 & -17 (1EA)	-55525		
	-15(1)	LDW200 -55524		

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 95	(5)

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR *, ADDED LTA-5/R EFF, N/A △

GAEC EO RELEASE: VK 11/19/69

MODEL	EFFECTIVITY: E ~~PROCURING ACTIVITY NO.~~ I	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM507	LTA-5/R(159)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	PST
✓		NOT REQ'D		DATE	11-18-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
		11/18			11/18/69	11/19/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1759

CDR 12-5-69
ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18068

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23544	LEM-6 (36)	1
↕	↕	LEM-5 (35)	1
↕	↕	LEM-4 (34)	1
↕	↕	LEM-3 (33)	1
LEM	LDW280-23544	LEM-2 (32)	1
PART NO. LDW280-18068-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23544	LEM-6 (36)	1EA
↕	LDW280-23544	LEM-5 (35)	↕
↕	LDW280-23544	LEM-4 (34)	↕
↕	LDW280-23544	LEM-3 (33)	↕
↕	LDW280-23544	LEM-2 (32)	↕
↕	LDW280-25544	LEM-1 (31)	↕
LEM	LDW280-25544	LTA-5 (15)	1EA
PART NO. LDW280-18068-15 & -17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25544	LEM-1 (31)	1EA
LEM	LDW280-25544	LTA-5 (15)	1EA
PART NO. LDW280-18068-11, -13		GAEC SCH NO. 50-	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	–	GRUMMAN REL INFO	
LAST DASH NO. USED	-19	PRIM NO. 207	AE(001) MP-8-8-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ~ ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.	NAS-9-1100	LINE ITEM I	DOCUMENTATION TYPE II
DRAWN BY	G.W.H.	RELIABILITY	—
LAYOUT BY	HANSMANN.		
CHECKED BY			
GP LDR	J. Studcock 7/26/66		
V.D.I.	Paulsmd 8-2-66		
STRUCT	J.J.B W/#	PROJ ENGR	R. McCarles (EV) 8/7
STRUCT	Hilderman 8/5	REL GROUP	Caramania 8-17-66
WEIGHTS	S. Robesch 8-12		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE ~ PROP FEED LINES
SPT ~ AFT LWR DECK ~ L.H. INBOARD.

SIZE	CODE IDENT NO.	
B	26512	LDW280-18068
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18068-19	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040 x 2 7/8 x 3 1/8	T6	88	
		LDW280-18068-17	E	CLIP	AL. ALLOY SH	QQ-A-250/12	7075	.040 x 2 1/2 x 3 3/8	T6	88	
		↕ -15	E	CLIP	↕	QQ-A-250/12	7075	.040 x 2 1/2 x 3 3/8	T6	88	
		↕ -13	E	CLIP	↕	QQ-A-250/12	7075	.040 x 2 7/8 x 3 3/8	T6	88	
		LDW280-18068-11	E	CLIP	AL. ALLOY SH	QQ-A-250/12	7075	.040 x 2 3/4 x 3 3/8	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

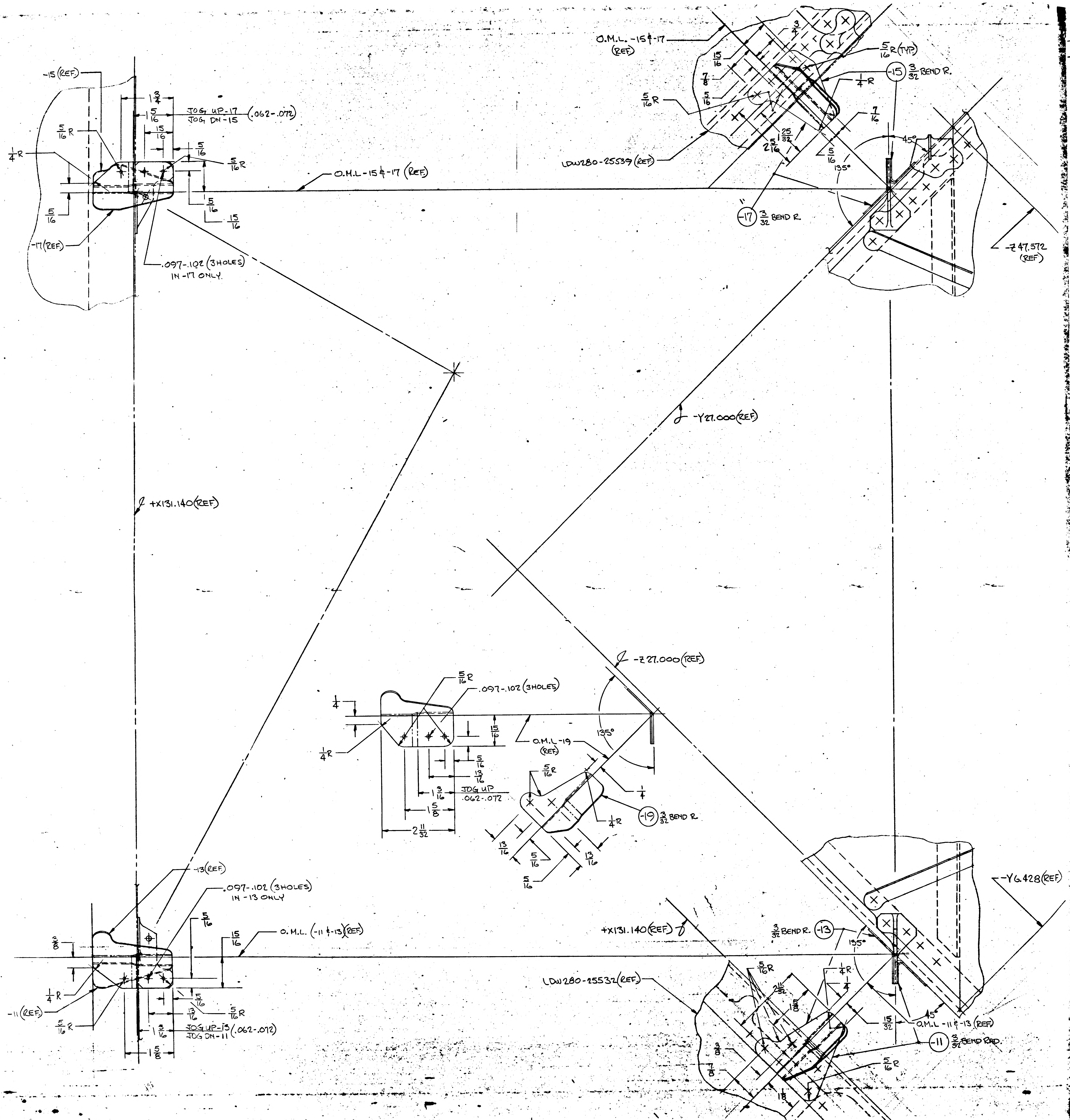
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18068
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


O.M.L. -15 & -17 (REF)
-15 (REF)
1 3/4
5/16 JOG UP-17 / JOG DN-15 (.062-.072)
15/16
5/16
5/16 R
1/4 R
5/16 R
O.M.L.-15 & -17 (REF)
5/16
15/16
-17 (REF)
.097-.102 (3 HOLES) IN -17 ONLY
3/4
15/16
7/8
5/16
5/16 R (TYP)
-15 3/32 BEND R.
1/4 R
7/16
LDW280-25539 (REF)
25/32
2 5/16
5/16
135°
45°
-17 3/32 BEND R
-Z 47.572 (REF)
-Y 27.000 (REF)
+X 131.140 (REF)
-Z 27.000 (REF)
5/16 R
.097-.102 (3 HOLES)
1/4
15/16
O.M.L.-19 (REF)
135°
1/4 R
5/16
13/16
1 3/16
JOG UP .062-.072
1 5/8
2 11/32
5/16 R
1/4
1/4 R
-19 3/32 BEND R
13/16
5/16
13/16
5/16
-13 (REF)
.097-.102 (3 HOLES) IN -13 ONLY
5/16
15/16
O.M.L. (-11 & -13) (REF)
3/8
1/4 R
-11 (REF)
5/16 R
5/16
13/16
5/16 R
1 3/16 JOG UP-13 / JOG DN-11 (.062-.072)
1 5/8
+X 131.140 (REF)
3/32 BEND R. -13
135°
-Y 6.428 (REF)
LDW280-25532 (REF)
5/16 R
1/4 R
2 11/32
15/32
45°
O.M.L -11 & -13 (REF)
-11 3/32 BEND RAD.
3/8
7/8
5/16 R
13/16

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RBEC TAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	√
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

NOTES:

1- LAYOUT RELEASE ~ TO BE RE-DRAWN ON PRODUCTION FORMAT
2- ALL INFORMATION NOT REQUIRED TO MANUFACTURE LDW 280-18068 -11, -13, -15 & -17 IS REFERENCE INFORMATION ONLY.

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NAS 9-1100

LDW280-18068

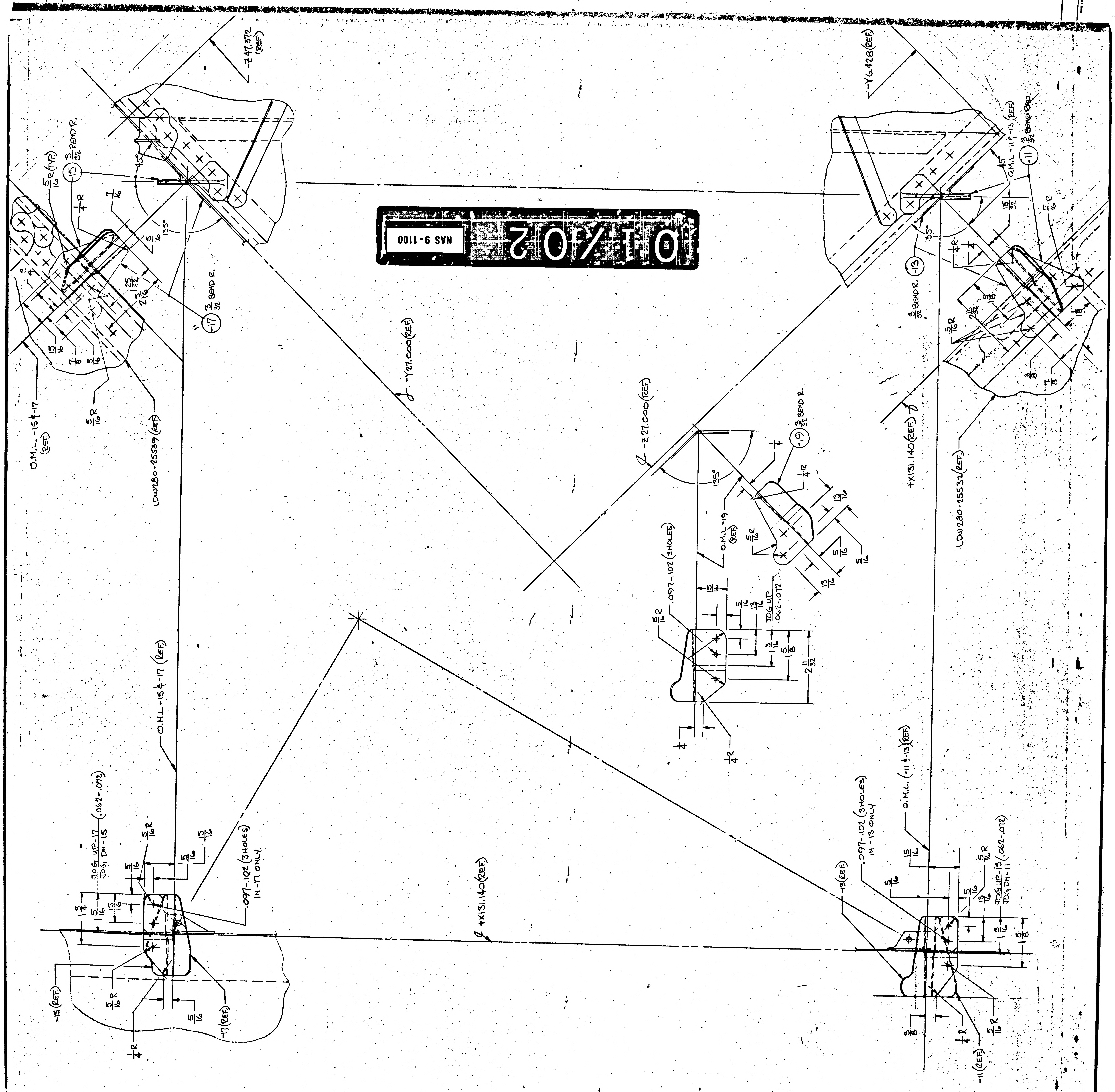
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW 280-18068	
MODEL OR END ITEM	SCALE FULL			SHEET 3.

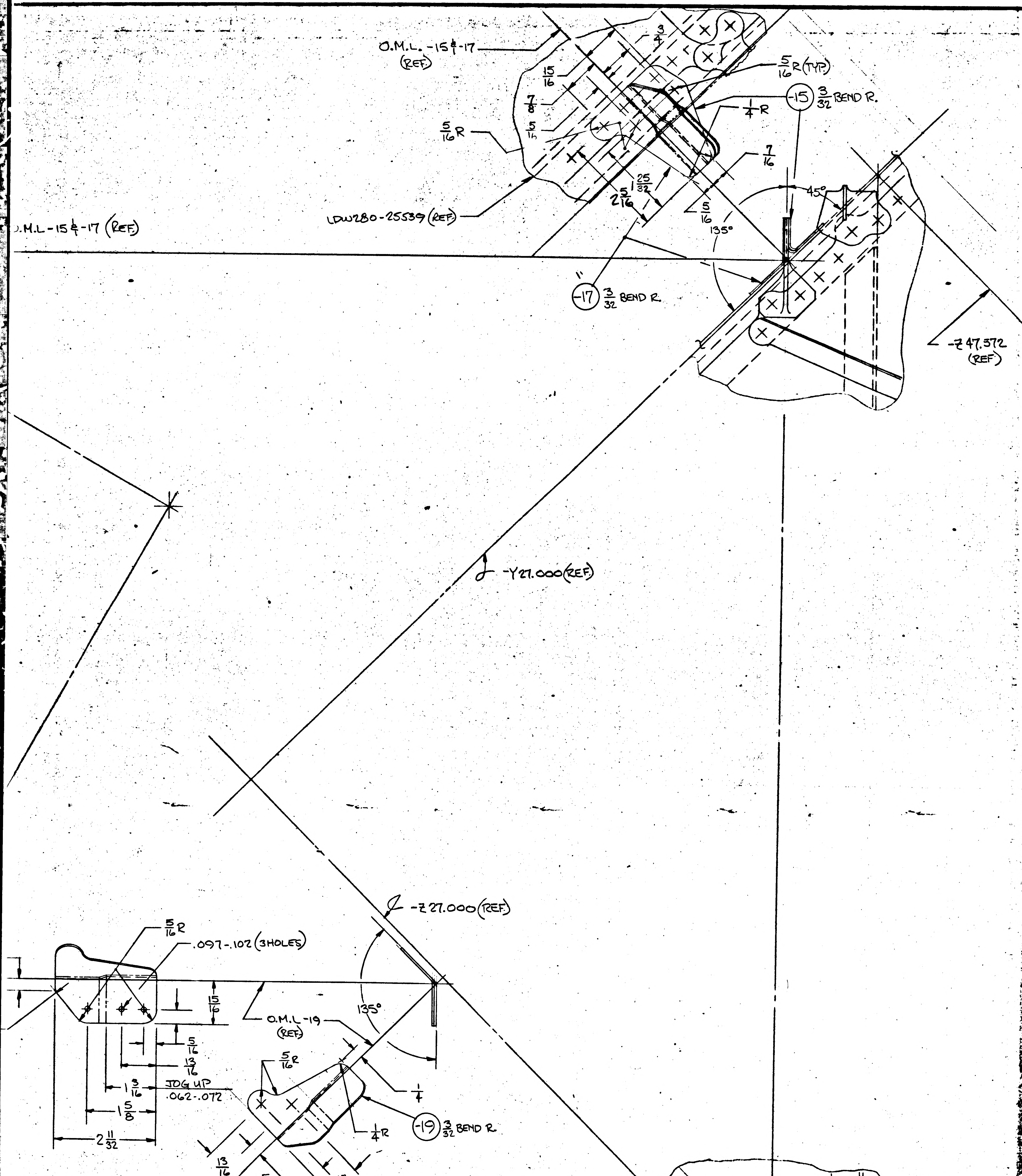
THIS IS AN ORIGINAL DRAWING.

ENG 73.7 6-64

01/02

NAS 9-1100


-Z47.572 (REF)
-Y6.428 (REF)
5/16 R (TYP)
-15 3/32 BEND R.
-17 3/32 BEND R
-13 3/32 BEND R.
-11 3/32 BEND R.
-19 3/32 BEND R
45°
135°
O.M.L.-15 & -17 (REF)
LDW280-25539 (REF)
LDW280-25532 (REF)
O.M.L.-11 & -13 (REF)
℄ -Y27.000 (REF)
℄ -Z27.000 (REF)
+X131.140 (REF)
℄ +X131.140 (REF)
O.M.L.-19 (REF)
.097-.102 (3 HOLES)
JOG UP .062-.072
O.M.L.-15 & -17 (REF)
JOG UP-17 JOG DN-15 (.062-.072)
.097-.102 (3 HOLES) IN -17 ONLY.
-15 (REF)
-17 (REF)
O.M.L. (-11 & -13) (REF)
.097-.102 (3 HOLES) IN -13 ONLY
-13 (REF)
JOG UP-13 JOG DN-11 (.062-.072)
-11 (REF)
1/4 R
5/16 R
5/16
15/16
13/16
1 5/8
1 3/16
2 11/32
3/8
7/8
7/16
25/32
2 5/16
15/32
11/32


O.M.L. -15 & -17 (REF)
O.M.L -15 & -17 (REF)
$\frac{15}{16}$
$\frac{7}{8}$
$\frac{5}{16}$
$\frac{5}{16}$R
$\frac{3}{4}$
$\frac{5}{16}$R(TYP)
-15 $\frac{3}{32}$ BEND R.
$\frac{1}{4}$R
$\frac{7}{16}$
$1\frac{25}{32}$
$2\frac{5}{16}$
$\frac{5}{16}$
135°
45°
LDW280-25539 (REF)
-17 $\frac{3}{32}$ BEND R.
-Z 47.572 (REF)
℄ -Y27.000 (REF)
℄ -Z27.000 (REF)
$\frac{5}{16}$R
.097-.102 (3 HOLES)
$\frac{15}{16}$
O.M.L.-19 (REF)
135°
$\frac{5}{16}$
$\frac{13}{16}$
$1\frac{3}{16}$
JOG UP .062-.072
$1\frac{5}{8}$
$2\frac{11}{32}$
$\frac{5}{16}$R
$\frac{1}{4}$
$\frac{1}{4}$R
-19 $\frac{3}{32}$ BEND R.
$\frac{13}{16}$
$\frac{5}{16}$
$\frac{13}{16}$
$\frac{5}{16}$
-Y6.428 (REF)
+X131.140 (REF) ℄
$\frac{3}{32}$ BEND R. -13
135°
LDW280-25532 (REF)
$\frac{5}{16}$R
$2\frac{11}{32}$
$1\frac{5}{8}$
$\frac{1}{4}$R
$\frac{1}{4}$
$\frac{15}{32}$
45°
O.M.L -11 & -13 (REF)
-11 $\frac{3}{32}$ BEND RAD.
$\frac{3}{8}$
$\frac{7}{8}$
$\frac{5}{16}$R
$1\frac{1}{8}$
(REF)

02/02

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
$\overset{125}{\vee}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\overset{200}{\vee}$ FOR ALL DRILLED HOLES	✓
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL $\checkmark$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

NOTES:

1- LAYOUT RELEASE ~ TO BE RE-DRAWN ON PRODUCTION FORMAT

2- ALL INFORMATION NOT REQUIRED TO MANUFACTURE LDW 280-18068 -11, -13, -15 & -17 IS REFERENCE INFORMATION ONLY.

LDW280-18068

LDW280-18068

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW 280-18068	
LEM MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

THIS IS AN ORIGINAL DRAWING.

ENG 73.7 8-64

ENG 22.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 547
CONTROL INFO NO. LDW280A-6136

FOR ALL DASH NO.* ON THE FOLLOWING DWGS WHICH HAVE LM-6 EFF ADD LTA-3D/R EFF QTY & N/A TO REMAIN THE SAME AS ON LM-6

DRAWING *	TITLE	CHANGE NO.
LDW280-17787 ✓	SEE DWG	B2
-17792 ✓		B5
-17797 ✓		A2
-17830 ✓		B1
-17841 ✓		A8
-17842 ✓		B1
-17843 ✓		A2
-17844 ✓		A2
-17845 ✓		A2
-17846 ✓		A2
-17850 ✓		B2
-17856 ✓		A2
-17874 ✓		B2
-17882 ✓		B1
-17883 ✓		B3
-17884 ✓		B2
-17885 ✓		B3
-17886 ✓		C4
-17887 ✓		B2
-17891 ✓		A3
-17906 ✓		B1
-17943 ✓		B2
-17948 ✓		B1
-17958 ✓		B2
-17960 ✓		B2
-17973 ✓		A3
-17977 ✓		B1
-17981 ✓		B1
-18064 ✓		B1
-18065 ✓		C1
-18066 ✓		A2
-18067 ✓		A3
-18068 ✓		A2
-18089		B2
-18090		B4
-18137		B2
-18195		C2
LDW280 -18202		B2
LDW280P 18133		A2
LDW 280-54684		A2
LDW 330-52056		B3
	SEE DWG.	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓
CL I ENGRG CHG	☐		LC019-1242

REASON FOR EO: FAILURE OF LTA-3D IN STATIC TEST

DESCRIPTION OF EO: IN M/B FOR * ADDED LTA-3DR EFF

GAEC EO RELEASE: JK 4/4/67 | 2 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R (*)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE		SUPPORT	RELIAB. GROUP					
/		NOT	REQD	3/28/67				JRB 3/28/67	WJH 3/31/67		3-30-67	4/1/67
				5	YDI							

PRIORITY: C | DRAWING TITLE: NOTED | DRAWING NO. LEO280 | EO NO. 547

ISSUED BY G. BARNES/J. STRAKOSCH X1153 SECTION YDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1332
CONTROL INFO NO. LDW280E 422

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18038 ✓	B4 ✓	SEE DWG
-18049 ✓	B2	
-18050 ✓	B3	
-18051 ✓	B5	
-18054 ✓	B2	
-18064 ✓	B3	
-18065 ✓	D2	
-18066 ✓	A3	
-18067 ✓	A4	
LDW280-18068 ✓	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG. 8-9 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: HF 4/12/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	[illegible]			[illegible]	[illegible]		[illegible]
DATE	[illegible]			4-2-69	4/8/69		4/9/69

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO. LEO 280 | EO NO. 1332

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1676
CONTROL INFO NO. LDW280B7745

FOR *: N/A LDW280-60544 WAS LDW280-23544 FOR LM-10(40) THRU LM-14(44), ADD LTA-11(23) & LTA-3DR/1(460) EFFECTIVITY FOR N/A LDW280-60544 (QTY REMAINS THE SAME AS THAT OF LM-10(40)).

PART NO. *	DWG NOMENCLATURE	CHANGE NUMBER
✓ LDW280-17786-19	SEE DWG	B4
✓ -17787-15,-17		B4
✓ -18066-13,-15		A5
✓ -18067-19		A6
✓ LDW280-18068,-15,-17,-19	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG. 55 PG. 1-3,4 (5)

REASON FOR EO: REDESIGN OF LOWER DECK & FOR EXTENDED PROP. TANKS

DESCRIPTION OF EO: FOR *: N/A LDW 280-60544 WAS LDW 280-23544 FOR ~~LM-10(40)~~ THRU LM-14(44), ADDED LTA-11(23) & LTA-3DR/1(460) EFFECTIVITY,

GAEC EO RELEASE: 6 | 8/18 8:25 | JK 9/19/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
LM		LM-14(44), LTA-11(23)	
LM		& LTA-3DR/1(460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	8-16-69			8/16/69	8/16/69		8/19/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1676

10-18-69 ISSUED BY J. LANG/P. THORJUSEN X87222 7-30-69 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO280 EO NO. 1760
CONTROL INFO NO. LDW280B9287

FOR*, ADD LTA-5/R (159) EFF ~ FOR N/A NOTED△.

DWG NO *	DASH NO *	NEXT ASSY △	DWG TITLE	CHG NO
LDW280-18767	-11(1)	LDW200-55518	SEE DWG	A2
	-13(1)	-55519		
	-15(1)	-55524		
	-17(1)	-55525		
-18716	-11, -13, -15 & -17 (1 EA)	-55519		A1
	-12, -16, -18 & -19 (1 EA)	-55524		
-17786	-19(1)	-55525		B5
-17787	-15 & -17 (1 EA)	-55525		B5
-18068	-15, -17 & -19 (1 EA)	-55525		A5
M18114	-11 (1)	-55518		A1
M18115	-11 (1)	-55518		A1
		-55519		
		-55524		
	-11(1)	-55525		
LDW280-18770	-11, -13 & -15 (1 EA)	LDW200 -55524	SEE DWG	A2

LFM

THIS IS AN ORIGINAL EO

DAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	✓	LCD 3890 PKG 95 (5)

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED TANKS

DESCRIPTION OF: FOR*, ADDED LTA-5/R EFF, FOR N/A △

GAEC EO RELEASE: 88 11-18-69; 11/19/69

EFFECTIVITY: E ⟷ I

	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM LFM507	LTA-5/R(159)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D		DATE	11-18-69			11-18	11/18/69		11/18/69	11/19/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 1760

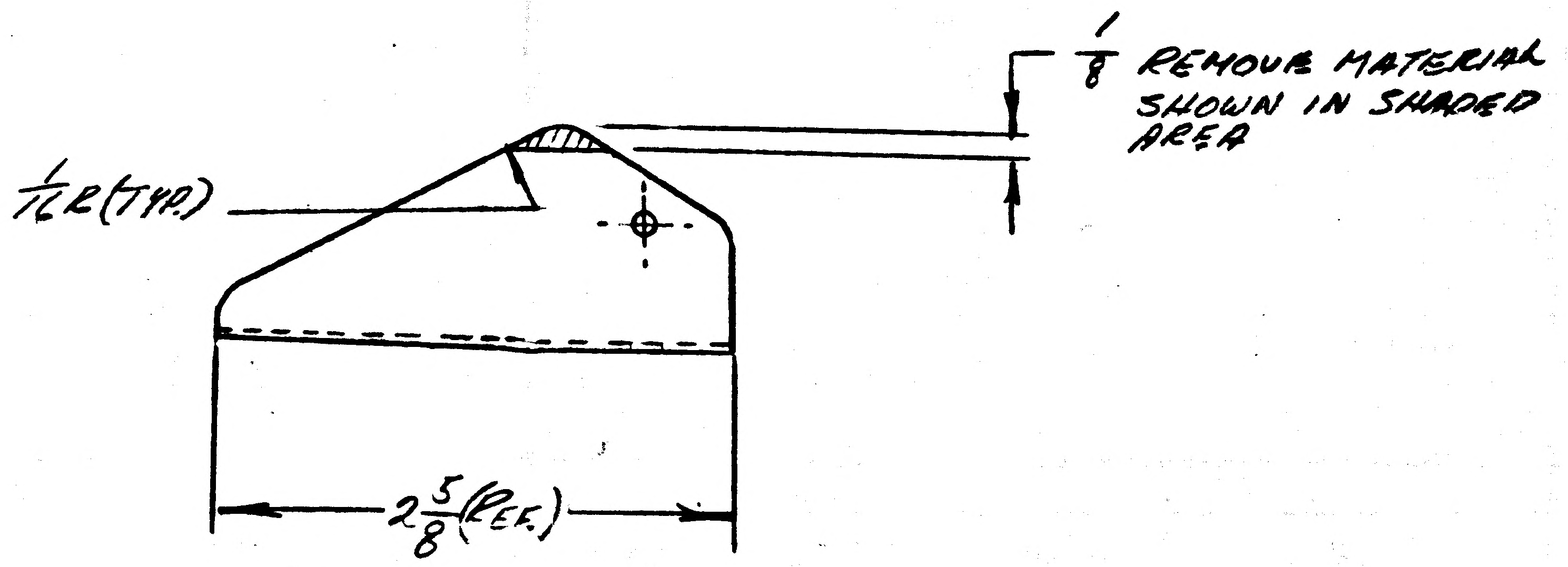
CDR 12-5-69 HERB DONNER X86042 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18068		EO NO. A6	
CONTROL INFO NO.	LM-5-22829		

ON -15



NOTE: BRUSH ALODINE NO 1C, PER LSP 14-9010 ON REWORKED AREAS.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCO 3890

REASON FOR EO	DESCRIPTION OF EO
TO ELIMINATE INTERFERENCE ON INSTL.	ON -15 TRIMMED OFF 1/8 MATERIAL

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-11 (41)	
		THRU	
		LM-13 (43)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY					KC			
				DATE	6-30-70			6/25/70	6/15/70	6/18/70	6-30-70	6/19/70
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP - D/S - PROP. FEED LINES - SPT - AFT LWR DK - L.H. INBD	LDW280-18068	A6

ISSUED BY LIAISON, R. Grell, X86755 SECTION VDE GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18069 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25797	LTA-5(15)	4
PART NO. LDW280-18069-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25797	LTA-5(15)	1EA
PART NO. LDW280-18069-17 & -21		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25797	LTA-5(15)	1EA
PART NO. LDW280-18069-11, -13 & -15		GAEC SCH NO. 50-2	

WORK PKG. FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO A		
		PRIM NO.	JL	
LAST DASH NO. USED	-21	207	MP5-A	7-6-67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	G. W. H	RELIABILITY	
LAYOUT BY	HANSMANN		
CHECKED BY			
GP LDR	J. STRAKOSCH 7-28		
VEH DES INT	L. PAULSRUD 8-2		
STRUCT.	W. HAUCK 8-3-66	PROJ ENGR	R.M. CARBEE 8-7
STRUCT.	HILDERMAN 8-5	REL GROUP	BOTTI 8-10-66
WEIGHTS	D. ROBESCH 8-9		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - PROP LINE SPT
LOWER DECK - FWD R.H. QUAD

SIZE	CODE IDENT NO.		
B	26512	LDW280-18069	A
SCALE NONE		SHEET 1.00 OF 4	

ENG 77.1 12-65

SUPERSEDES LDW280-18069 8-10-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REV. NO CHANGE. ADDED SH NO. 1.10 LOFTED DWG WAS DIM. G.ENGEL 6-30-67						
A	1	1, 1.10, 2.00 & 3.00						EO A1	IN FLD, B/M, & MOD/BLK ADDED -21. IN MOD/BLK ON -17 1 REQ'D/MOD WAS 2 REQ'D O.J.	LTA5(15)	✓	JK	G.ENGEL 6-30-67		

CHG APPROVED												
LTR	GROUP LDR	VEH DES INT	STRUCT.	STRUCT	WEIGHTS	RELIABILITY	MATERIAL					
A												

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18069	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18069-21	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 x 4 x 5	T6	88	B3
								-19	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.032 x 2 3/4 x 2 3/4	NONE	88	F3
								-17	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 x 3 1/2 x 5 1/4	T6	88	B5
								-15	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 x 4 x 14 1/2	T6	88	E5
								-13	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 x 5 x 13 3/8	T6	88	G5
								LDW280-18069-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.040 x 4 x 24 3/8	T6	88	E7

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18069
A

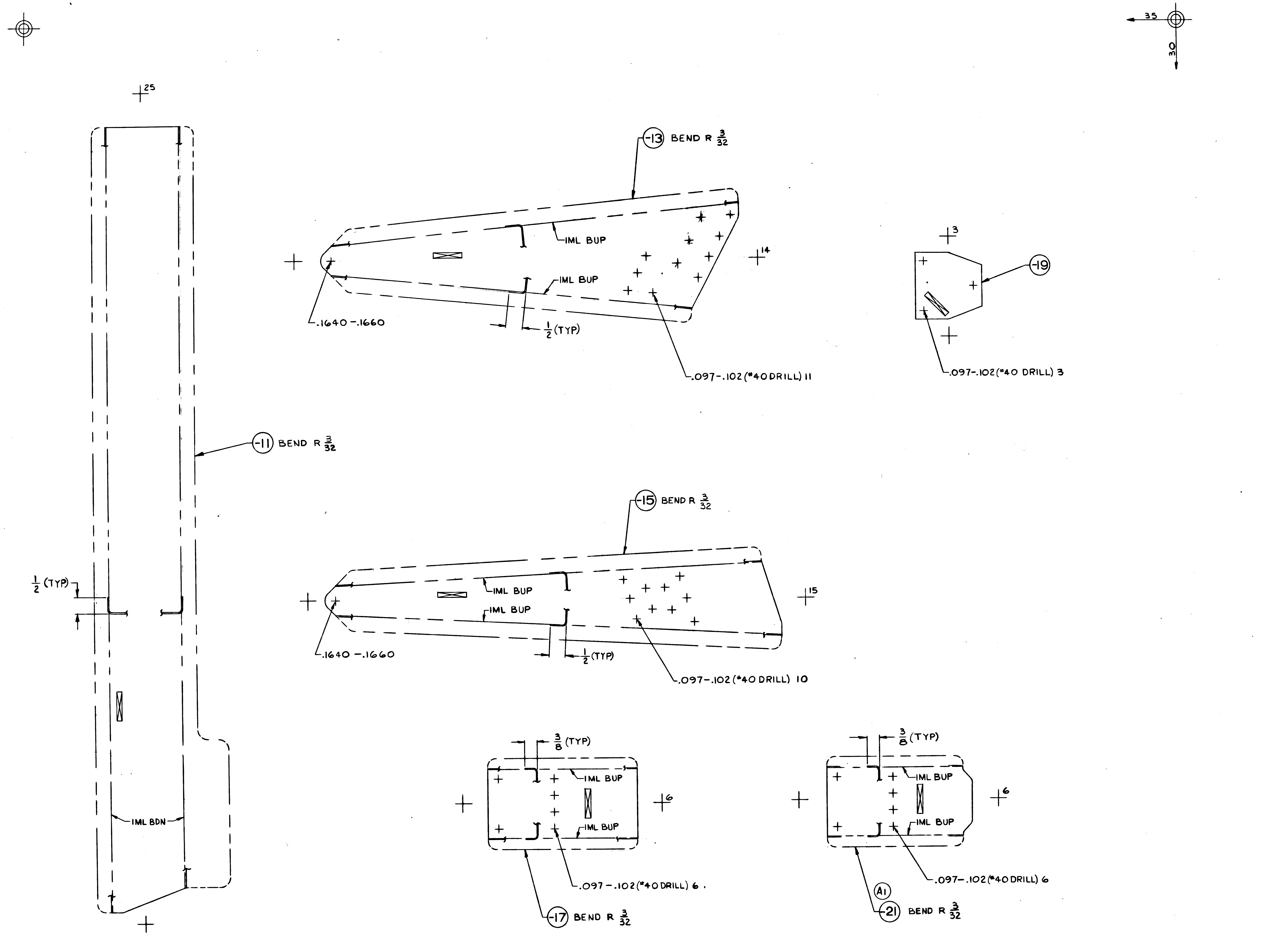
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

TRAM. O.K.
T.S. 6-13-67


35
30
+25
-13 BEND R $\frac{3}{32}$
IML BUP
IML BUP
+14
.1640-.1660
$\frac{1}{2}$ (TYP)
.097-.102 (#40 DRILL) 11
+3
-19
.097-.102 (#40 DRILL) 3
-11 BEND R $\frac{3}{32}$
-15 BEND R $\frac{3}{32}$
IML BUP
IML BUP
+15
$\frac{1}{2}$ (TYP)
.1640-.1660
$\frac{1}{2}$ (TYP)
.097-.102 (#40 DRILL) 10
IML BDN
$\frac{3}{8}$ (TYP)
IML BUP
IML BUP
+6
.097-.102 (#40 DRILL) 6.
-17 BEND R $\frac{3}{32}$
$\frac{3}{8}$ (TYP)
IML BUP
IML BUP
+6
.097-.102 (#40 DRILL) 6
A1
-21 BEND R $\frac{3}{32}$

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18069 A

LDW280-18069 A

01

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE E	CODE IDENT NO. 26512	LDW280-18069	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1

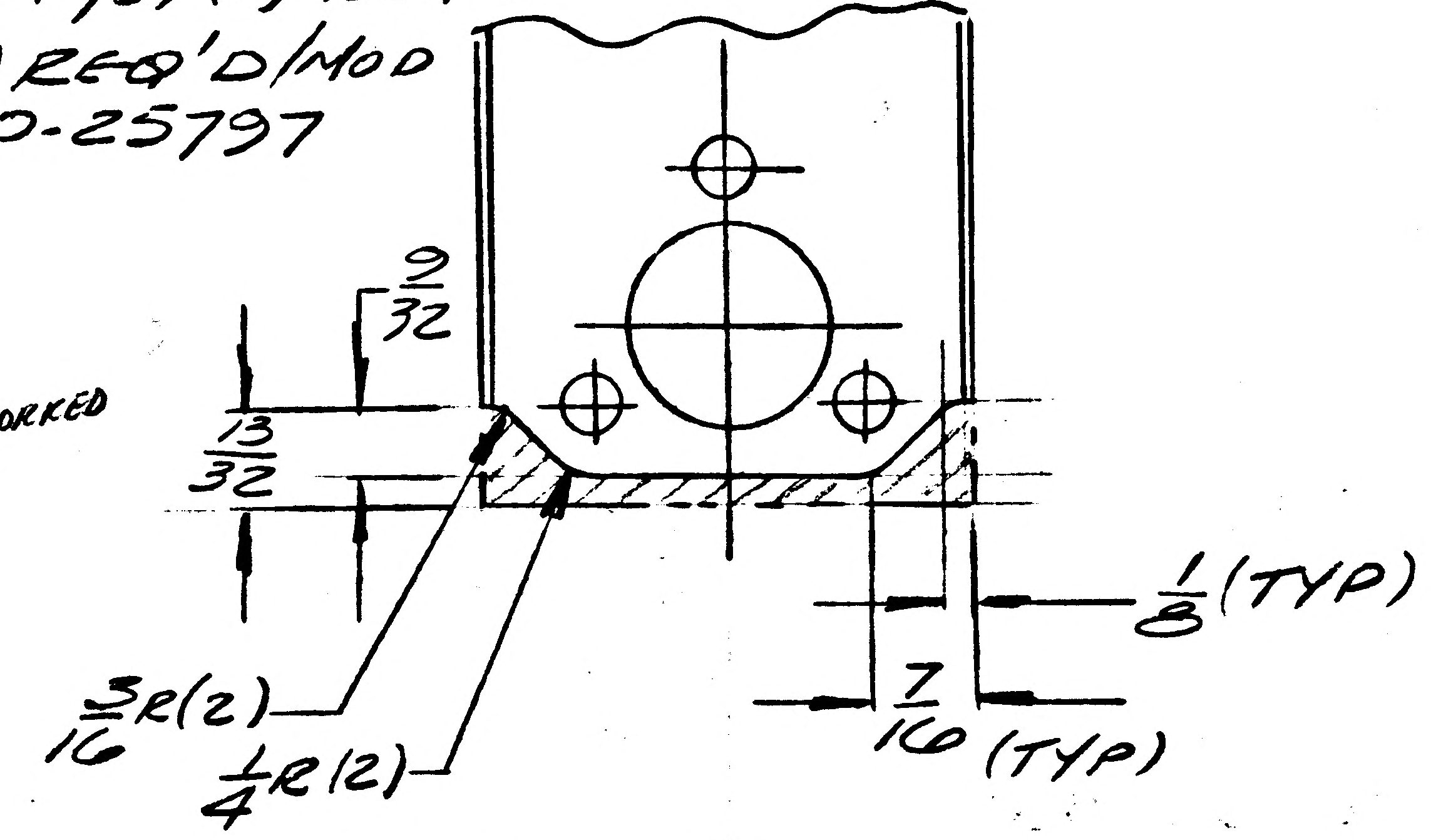
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18069
EO NO. A1
CONTROL INFO NO. LM-5-9517

IN FLD, B/M, & MOD/BLK CREATE -21 SAME AS -17 EXCEPT AS NOTED: (1 REQ'D) 1 & T=E

IN MOD/BLK:
-17 (2) REQ'D/MOD (S/B) (1) REQ'D
(ADD) -21 (1) REQ'D/MOD
N/A LDW280-25797



NOTE: -17 MAY BE REWORKED INTO -21

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: PROVIDE CLEARANCE WITH HEAT SHIELD

DESCRIPTION OF EO: IN FLD, B/M, & MOD/BLK ADDED -21; IN MOD/BLK (ON -17) 1 REQD/MOD (WAS) 2 REQD

GAEC EO RELEASE: ② FR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 5 (15)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
	VDI				JFJ	CH	RMC	
DATE	10/21/66				10-18-66	10-18-66	10-19-66	10-18-66

PRIORITY: C

DRAWING TITLE: CHANNEL, D/S ~ PROPLINE SPT LOWER DECK ~ FWD RH QUAD

DRAWING NO. LDW280-18069

EO NO. A1

ISSUED BY LIAISON MDREYES X6452 SECTION VD1 GROUP NO. 335 PL 35

01 NAS 9-1100

LDW280-18070

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LEM	LDW280-25797	LTA-5(15)	1EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18070-11, -12		GAEC SCH NO. 50-2	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1:00		2:00		3:00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED ~

LAST DASH NO. USED -12

GRUMMAN REL INFO
PRIM NO. LE(001) 207 MP-8-5-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM I
DOCUMENTATION TYPE II
DRAWN BY G.W.H.
LAYOUT BY HANSMANN
CHECKED BY
GP LDR J. Strakosh 7/28/66
V.D.I. Paulsen 8-2-66
STRUCT WH N 8/2/66
STRUCT Hilderman 8-3
WEIGHTS D Rakead 8-8
PROJ ENGR R.M. Carbee (EU) 8-11
REL GROUP Botti 8-11-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE ~ PROP. LINES SPT ~
LOWER DECK ~ L.H. FWD QUAD.

SIZE B
CODE IDENT NO. 26512
LDW280-18070
SCALE NONE
SHEET 1:00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
								RETRACED NO	CHG LAST REV NO CHG ADDED SH.1.10 LOFTED DWG WAS DIM. J. INGOGLIA 6-13-67						

CHG APPROVED

LTR	GROUP LDR	VEHDESINT	STRUCTURE	STRUCTURE	WEIGHTS					
		J. Pusateri 9/4								

ENG 77.16 3-66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18070

SCALE NONE SHEET 1.10

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18070-12	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040×2½×2¾	T6	88	
								LDW280-18070-11	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040×2½×2¾	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18070

SCALE NONE

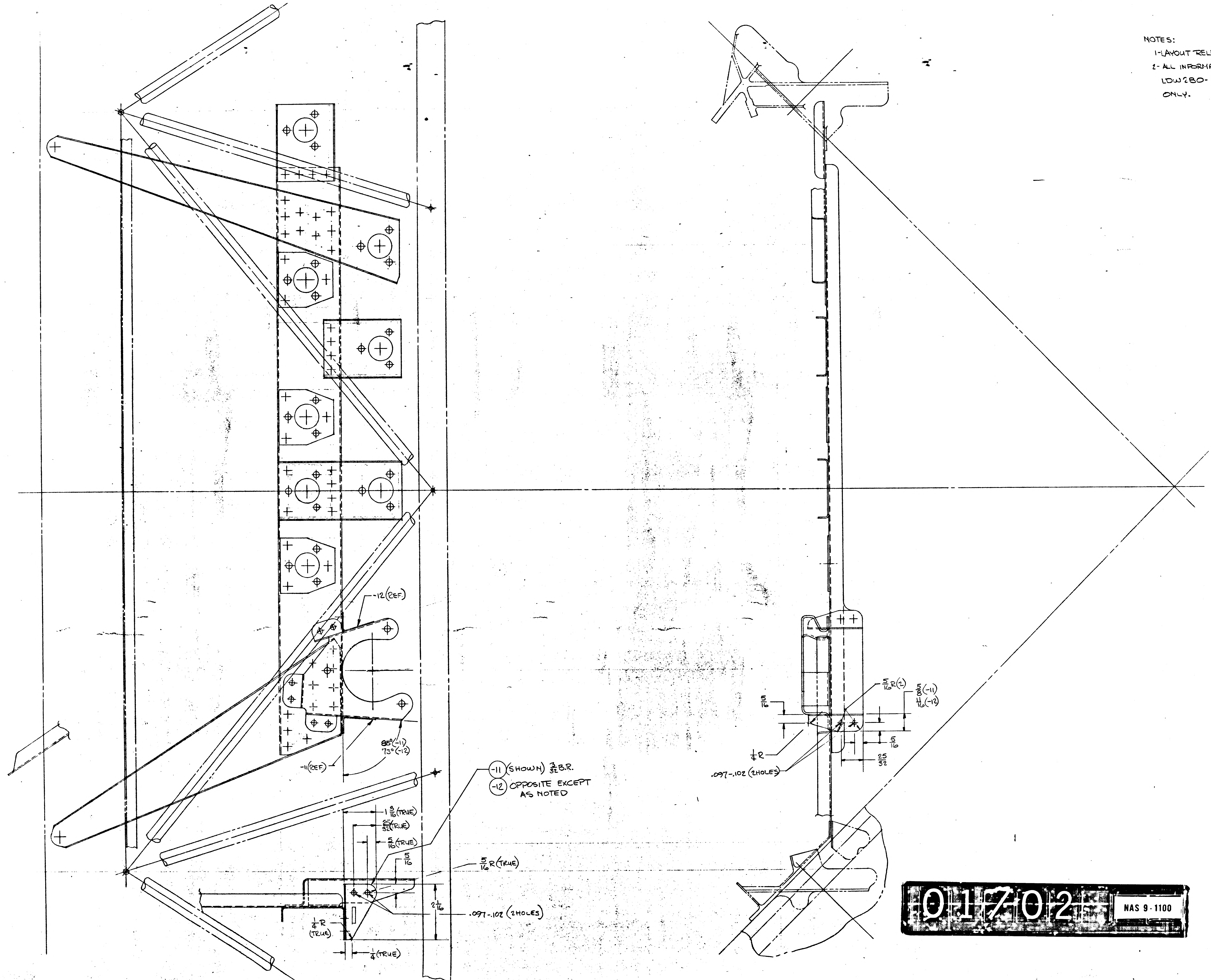
SHEET 2:00

ENG 77.2 7-65

01

NAS 9-1100

NOTES:
1-LAYOUT RELEASE ~TO
2- ALL INFORMATION NOT
LDW280-
ONLY.


-12 (REF)
85° (-11)
73° (-12)
-11 (REF)
-11 (SHOWN) 3/32 B.R.
-12 OPPOSITE EXCEPT AS NOTED
1 3/16 (TRUE)
25/32 (TRUE)
5/16 (TRUE)
5/16
5/16 R (TRUE)
2 1/16
.097-.102 (2 HOLES)
1/4 R (TRUE)
1/4 (TRUE)
5/16 R (2)
5/8 (-11)
11/16 (-12)
5/16
5/16
25/32
1/4 R
.097-.102 (2 HOLES)

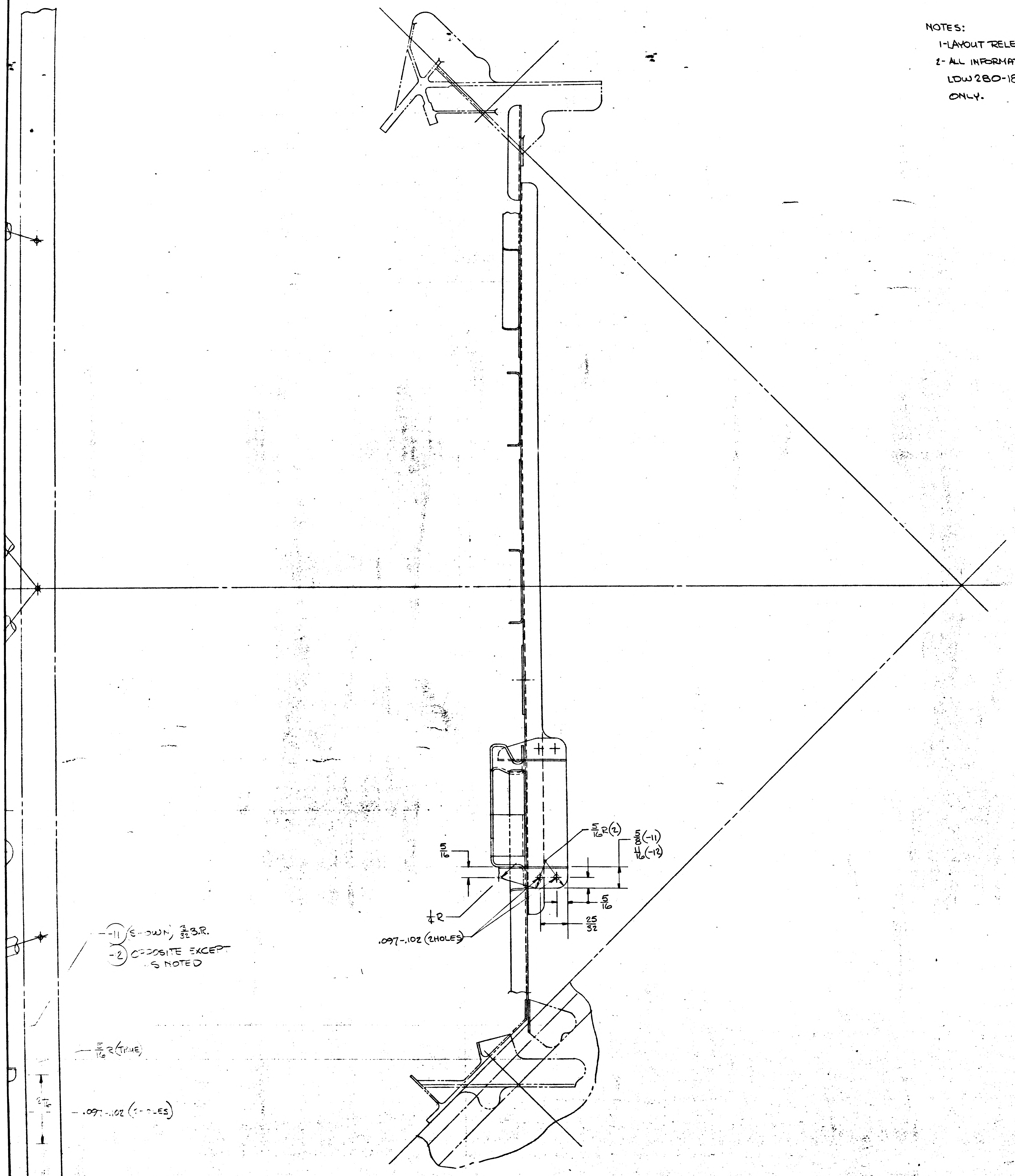
01702

NAS 9-1100

NOTES:

1-LAYOUT RELEASE ~TO BE REDRAWN ON PRODUCTION FORMAT.

2- ALL INFORMATION NOT REQUIRED TO MANUFACTURE LDW280-18070-11,-12 IS REFERENCE INFORMATION ONLY.



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

02/02 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-18070	
MODEL OR END ITEM	SCALE FULL			SHEET 3

THIS IS AN ORIGINAL DR

LDW280-18071 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25799	LTA-5(15)	1 EA
LEM	LDW280-25793	LTA-5(15)	1 EA

PART NO. LDW280-18071-14 & -16 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25799	LTA-5(15)	2 EA
LEM	LDW280-25798	LTA-5(15)	2EA

PART NO. LDW280-18071-17 & -19 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25798	LTA-5(15)	1EA

PART NO. LDW280-18071 -11, -13, -15 | GAEC SCH NO. 50-

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: A

LAST DASH NO. USED: -19

GRUMMAN REL INFO: A

PRIM NO.: 207 | V(001) | ME-1A-4/11/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/16 ± .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100 | LINE ITEM I | DOCUMENTATION TYPE II

DRAWN BY: G.W.H.
LAYOUT BY: HANSHANN
CHECKED BY:
GP LDR: 8/3/66
VDI: 8/
STRUCT: R.K. W/H 8/5
STRUCT: Hilldisman 8/
WEIGHTS: 8-9
PROJ ENGR: R. M. Carbee (EV) 8/7
REL GROUP: Botti 8-10-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE ~ PROP. FEED. LINES
AFT-R.H. QUAD ~ G.S.E. SPT.

SIZE B | CODE IDENT NO. 26512 | LDW280-18071 | A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.10, 2.00							INC EO A 1. ADDED SH 1.10	LTA-5			H. MURPHY 4-4-69		
	2	1.00							INC LEO 280-236						
	3	3.00							INC EO A 3						
	4	3.00							INC EO A 4						
	5	3.00							INC EO A 5						
	6	1.10		②					INC EO A 6		4-10-69	H.D.	L.D.		

CHG APPROVED

LTR	GROUP LDR	V.D.I.	STRUCT	STRUCT	WEIGHTS
A					

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18071	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18071 -19	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 1¾ x 2	NONE	88	
		LDW280-18071 -17	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 4¼ x 40½	NONE	88	
		-16		ZEE			2024-T3	.056 x 4 x 21¾	NONE		
		-15		ZEE			2024-T3	.056 x 4 x 21¾	NONE		
		-14		GUSSET			2024-T3	.050 x 5¼ x 15	NONE		
		-13		GUSSET			2024-T3	.050 x 5¼ x 15	NONE		
		LDW280-18071-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 8½ x 45¾	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18071	A
SCALE NONE			SHEET 2.00

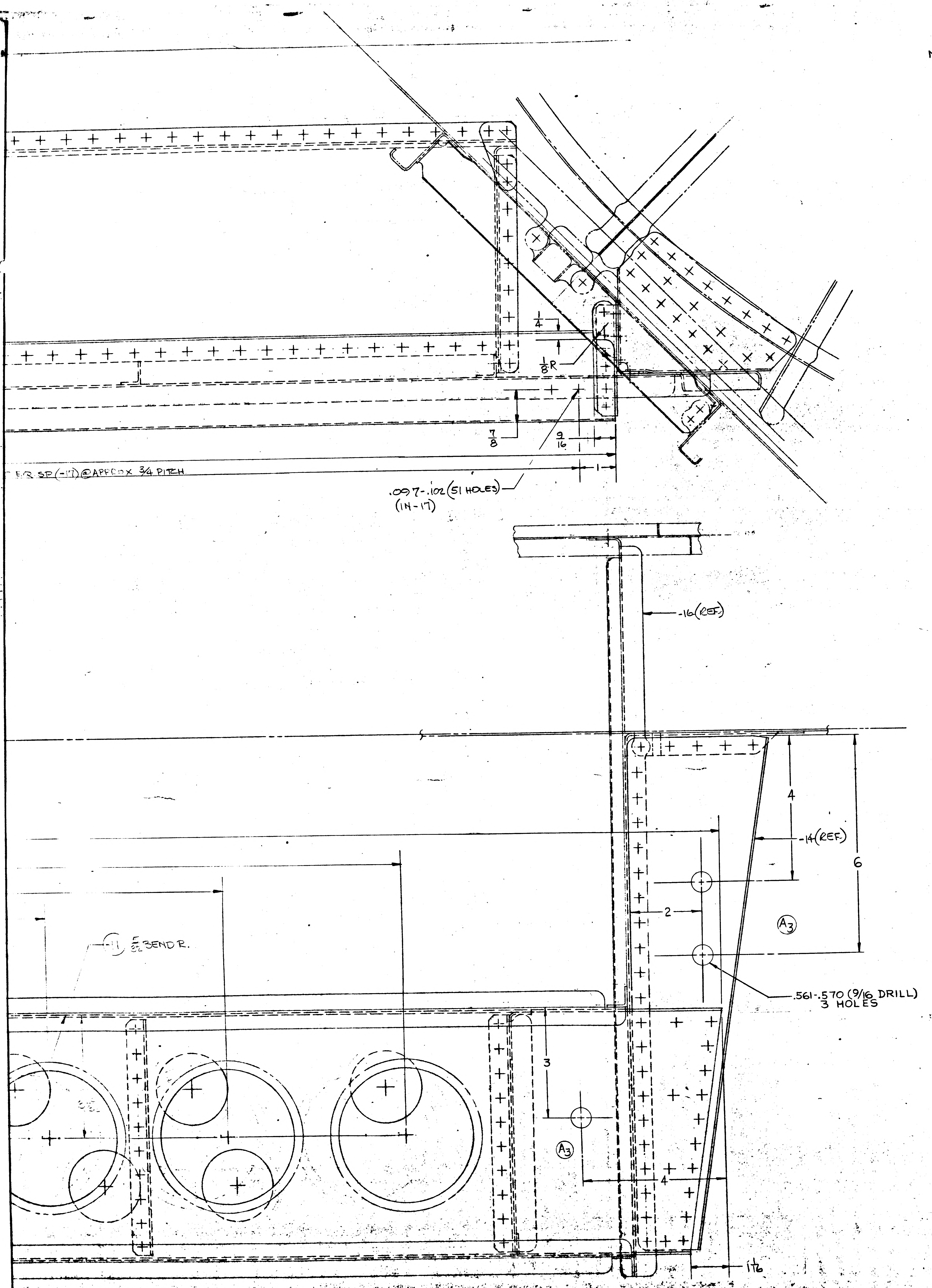
ENG 77.2 7-65

01

NAS 9-1100

(19) 5/32 BEND R.
(TYP-DIM-BOTH FLANGES)
.097-.102 (4 HOLES)
5/8
1/4
1/2
1/4
1/8 R
2 1/2
9/16
1
1/2
1/4 ± 1/8 R (TYP)
2 3/16 ± 1/4
A4 A5
39 11/16
50 EQ. SP. (-17) @ APPROX 3/4 PITCH.
(-17) 5/32 BEND R.
7/8
.097-.102 (5 HOLES)
(14-17)
A
A
11/16
-15 (REF.)
(-15) SHOWN
(-16) OPP
5/32 BEND R.
1/8 R
9/16
1/4
5/8
3 15/16
20 15/32
1/8 R
45°
5/8
5/16
1 13/16
5/16 R (3)
2
3/8
45°
5/16
.097-.102 (2 HOLES)
-15 (REF.)
VIEW A-A
1/2
1/4 R
14 23/32
1/2
.097-.102 (20 HOLES)
14-15
(-13) SHOWN
(-14) OPP
5/32 BEND R.
10 EQ. SP.
45 5/16
36 3/16
31 3/16
26 3/16
21 3/16
17 3/4 ± 1/4
16
13 ± 1/2
-17 (REF.)
GH11F-36 (4)
FLANGE DN.
(-11) 5/32 BEND R.
3/8
1 5/16
.097-.102 (14 HOLES)
(14-11)
(TYP-2 PLACES)
1/4
9 EQ. SP.
6 13/16
3/8
1 3/4
6 1/16
9 EQ. SP.
(-15)
14
14 7/32
-11 (REF.)
5/8
GH11F-32
FLANGE DN
4 13/32
1 ± 1/2
A4 A5
3 13/32
5/8
-11 (REF.)
1 1/16
11/16

01/02 NAS 9-1100



NOTES:

1- LAYOUT RELEASE ~ TO BE REDRAWN ON PRODUCTION FORMAT.
2- ALL INFORMATION NOT REQ'D TO MANUFACTURE - LDW 280-18071-11 THRU -17 IS REFERENCE INFORMATION ONLY.
3- ALL CORNER RADII 1/4 UNLESS OTHERWISE NOTED.

02/02 NAS 9-1100

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	✓
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

LDW280-18071-1

LDW280-18071 A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK	
SIZE J	CODE IDENT NO. 26512
LDW280-18071	-
MODEL OR END ITEM LEM	SCALE FULL
SHEET 3.C	

THIS IS AN ORIGINAL DRAWING

ENG 32.2 REV 2-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 236
CONTROL INFO NO. LDW280-9699

FOR THE FOLLOWING DETAILS ADD NEXT ASSY LDW280-25799 EFFECTIVE LTA-5(15) FOR QUANTITIES REQD / MODULE

DWG NO.	DASH NO.	NO REQD PER MODULE	DWG TITLE	CHANGE NO.
*LDW280-18071	-14	1	CHANNEL ~ DESCENT STAGE ~ PROP FEED LINES ~ AFT R.H. QUAD ~ G.S.E. SPT.	A2
	-16	1		
	-17	2		
	-19	2		
*LDW280-18072	-16	1	WEB ~ DESCENT STAGE PROP FEED LINES ~ AFT R.H. QUAD ~ G.S.E. SPT.	A1
	-17	1		
	-18	1		
	-19	4		
*LDW280-18073	-15	2	ANGLE ~ DESCENT STAGE PROP FEED LINES AFT R.H. QUAD. G.S.E. SPT.	A1
	-17	2		
	-18	2		
	-19	2		

* USE APPLICABLE DASH No
IN DESCRIP OF EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS FOR DETAIL PARTS.

DESCRIPTION OF EO: FOR * ADDED NEXT ASSY LDW280-25799 EFFECTIVE FOR LTA-5(15).

GAEC EO RELEASE: 6 92

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-5(15)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	JHS	SM			WB		RMC(E)	Bolt
DATE	8/18/66	9/15			8/19/66		9-1	8-26-66
	VDI	~~SUPPORT~~	RFLIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GAEC~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 236

ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

01
NAS 9-1100

ENG 32.1 REV 3-65

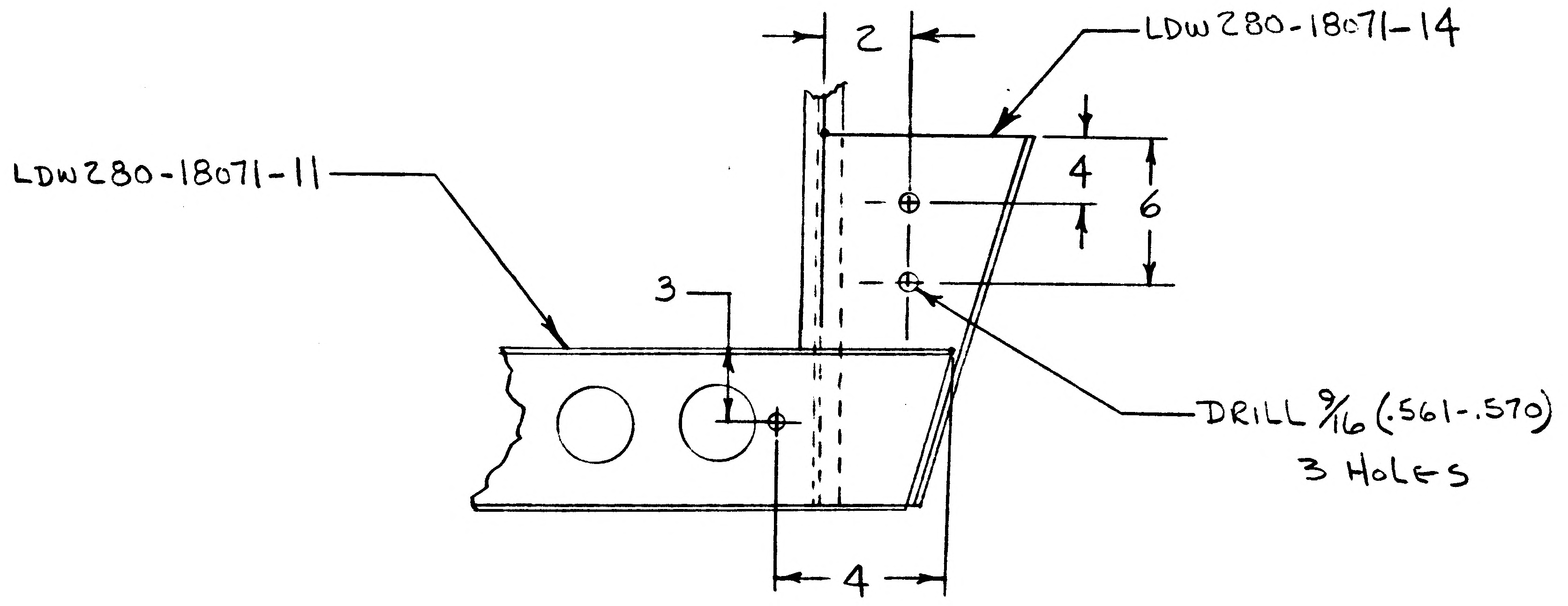
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW 280-18071 | EO NO. A3

CONTROL NO. LDW 82-2575



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE HOLES FOR ENGINE DRAIN & PURGE LINES.	ADDED 9/16 HOLES (2) IN -14 & (1) IN -11	C LE 12/21

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-5 (12)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY / DATE	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
REVISE DWG	RECORD EO	REWORK	SCRAP								
✓		✓							12-6-66	12/6/66	12/6/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S - PROP. FEED ~~LINES~~ CHANNEL - R.H. QUAD. GSE SUPP.	LDW 280-18071	A3

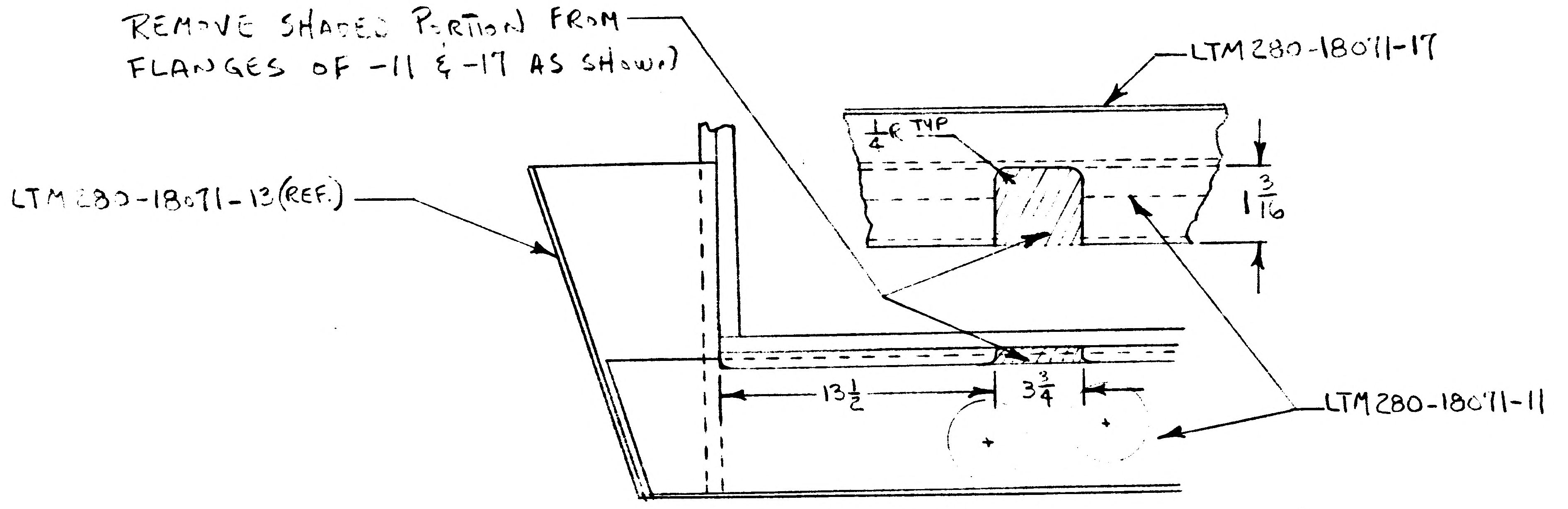
ISSUED BY P. DUGAN X5214 SECTION DEV. ENGG / WSTF-MSC GROUP NO. 862 PL 82

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18071		EO NO. 14
CONTROL INFO NO. LDW 32 - 2697		



REMOVE SHADED PORTION FROM FLANGES OF -11 & -17 AS SHOWN
LTM 280-18071-17
$\frac{1}{4}$R TYP
$1\frac{3}{16}$
LTM 280-18071-13 (REF.)
$13\frac{1}{2}$
$3\frac{3}{4}$
LTM 280-18071-11

+Y -Z QUADRANT
VIEW LOOKING INBD.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC C EO RELEASE
TO PROVIDE CLEARANCE FOR SCHE LINE.	ADDED CUTOUT TO -11 & -17	W

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 5	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JRS				[illegible]	[illegible]	[illegible]	Bott.
DATE	1/25				1-11-67	1-11-67	1/11/67	1-11-67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CDMT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL I/S - PROP FEED LINES - R.H QUAD. GSE SUPPORT	LDW 280-18071	14

ISSUED BY P. DUGAN X1214 SECTION DEV. ENG. - MSC/WSTF GROUP NO. 862 PL 82

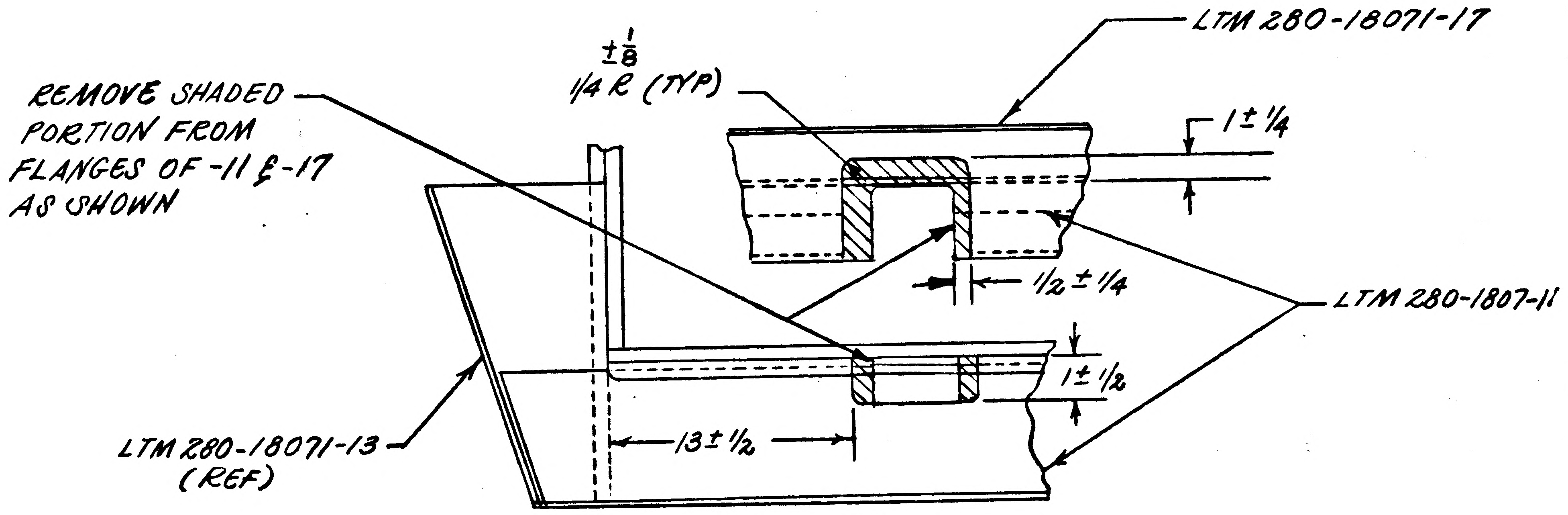
01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 2651?

ENGINEERING ORDER

DWG. NO. LDW280-18071		EO NO. A5	
CONTROL INFO NO. LDW82-2963			



REMOVE SHADED PORTION FROM FLANGES OF -11 & -17 AS SHOWN
±1/8
1/4 R (TYP)
LTM 280-18071-17
1 ± 1/4
1/2 ± 1/4
LTM 280-1807-11
1 ± 1/2
13 ± 1/2
LTM 280-18071-13 (REF)

+Y -Z QUADRANT

(VIEW LOOKING INB'D)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE CLEARANCE FOR ScHe VENT Q.D. (GROUND HALF)	EXTENDED CUTOUT TO -11 & -17	JS 3-28-7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-5	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE				3-9-67			3/9/67	3/27/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL D/S - PROP. FEED LINES - R.H. QUAD GSE SUPPORT	LDW 280-18071	A5

ISSUED BY R. Heindell x5214 SECTION DEV ENG/MSC/WSTF GROUP NO. 862 PL 82

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18071
EO NO. A6
CONTROL INFO NO. LDW 82-3004

THIS IS A REVISION TO EO A5 (LDW 82-2963)

LDW 280-18071-11	(WAS)	LTM 280-1807-11
" " -13		LTM 280-18071-13
" " -17		LTM 280-18071-17

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

2

REASON FOR EO: TO CORRECT CALLOUTS

DESCRIPTION OF EO:
REF. EO A5
LDW 280-18071-11 WAS LTM 280-1807-11,
LDW280-18071-13 & -17 WAS LTM 280-18071-13 & 17

GAEC EO RELEASE: JK C

EFFECTIVITY

MODEL		GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-5 (15)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY / DATE: 5

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
				PJR 4-4-67	4/4/67	4-4-67

PRIORITY: C

DRAWING TITLE: CHANNEL
D/S-PROP. FEED LINES-R.H. QUAD, GSE SUPPORT

DRAWING NO. LDW280-18071

EO NO. A6

ISSUED BY Shanesew/P. Dugan X5214

SECTION DEV ENG/MSC-WSTF

GROUP NO. 862

PL 88

01

NAS 9-1100

LDW280-18072

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25798	LTA-5(15)	4
PART NO. LDW280-18072-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25798	LTA-5(15)	1EA
PART NO. LDW280-18072 -11,-13,-15,-16,-17 & -18		GAEC SCH NO. 5°	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		300				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 E(001) MP-87-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ~ ±.020 ~ ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY G.W.H.
LAYOUT BY HANSMANN
CHECKED BY
GP LDR 8/3/66
V.D.I. 8/8
STRUCT 8/5
STRUCT Hilderman 8/5
WEIGHTS 8/9
PROJ ENGR R.M. Carbee (EV) 8/7
REL GROUP Botti 8-10-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE ~ PROP FEED LINES
AFT R.H. QUAD ~ G.S.E SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18072
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18072-19	E	GUSSET	AL ALLOY SH	QQ-A-250/A	2024-T3	.050 x 1 1/4 x 2 3/4	NONE	88	
		-18		WEB				.050 x 7 5/8 x 8			
		-17		WEB				.050 x 7 5/8 x 8			
		-16		GUSSET				.050 x 5 1/4 x 6 7/8			
		-15		GUSSET				.050 x 5 1/4 x 6 3/8			
		-13		PLATE				.125 x 7 1/4 x 23			
		LDW280-18072-11	E	WEB	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x 7 3/4 x 23	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

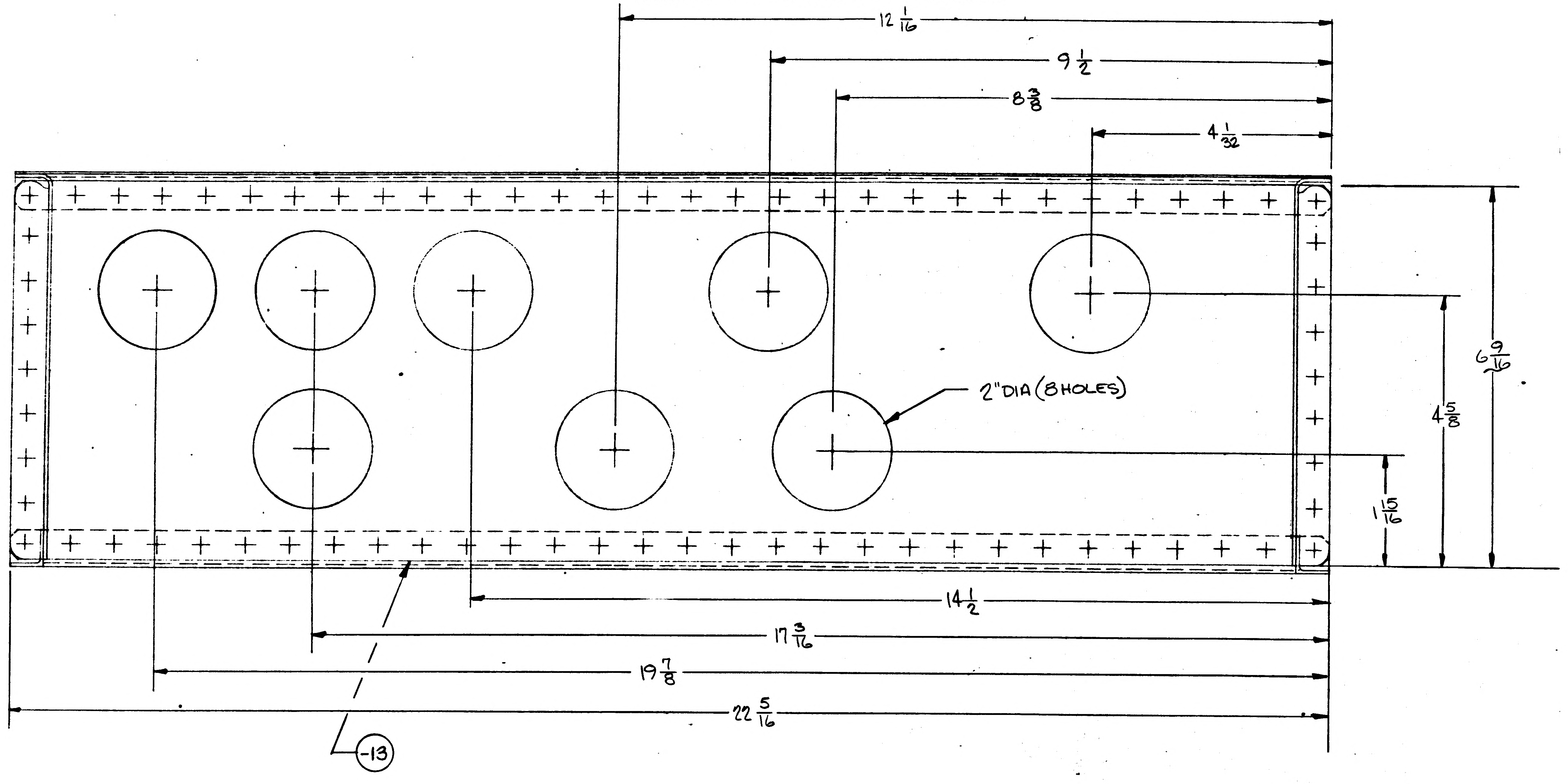
SIZE	CODE IDENT NO.	
B	26512	LDW280-18072

SCALE NONE SHEET 2.00

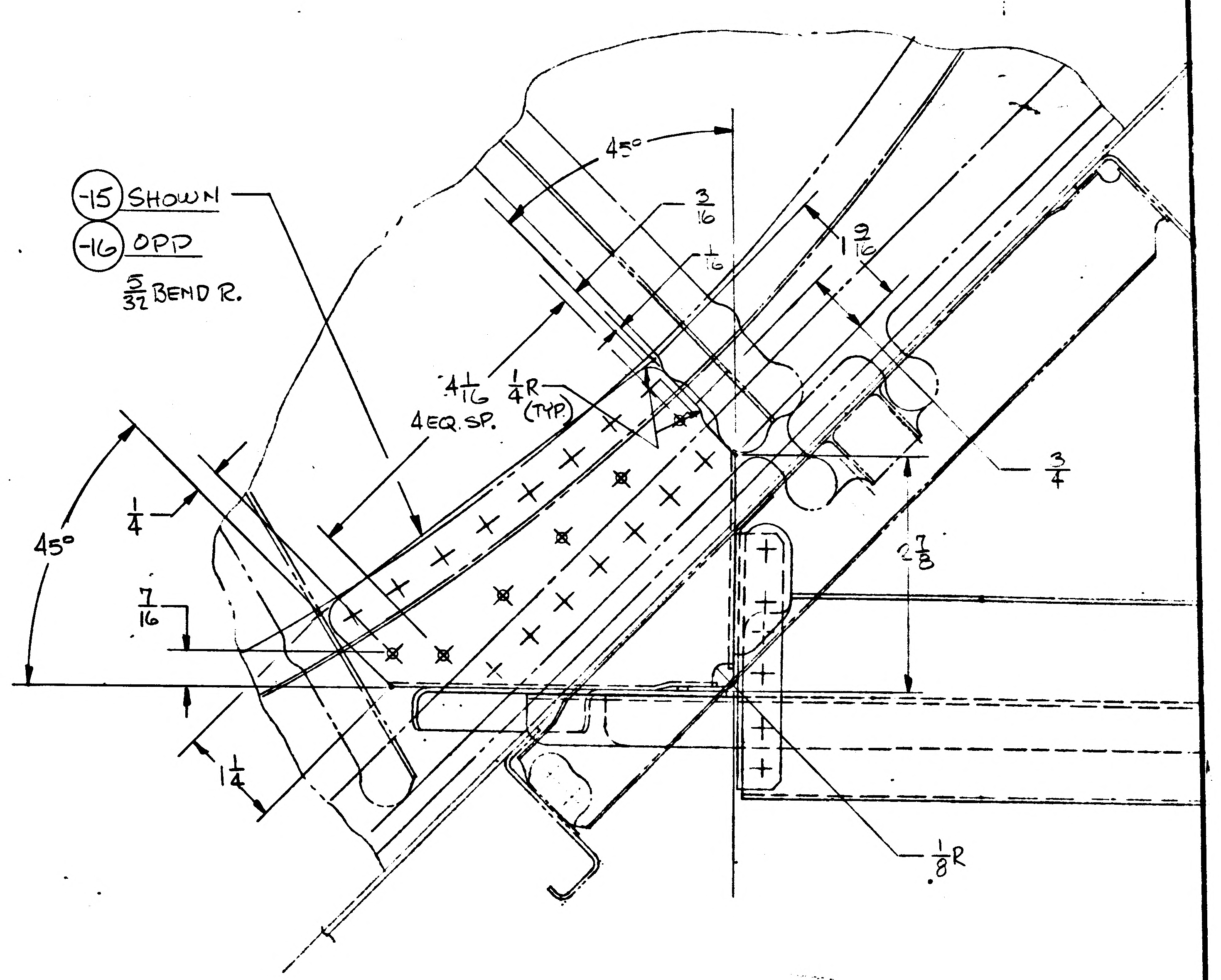
ENG 77.2 7-65

0 1

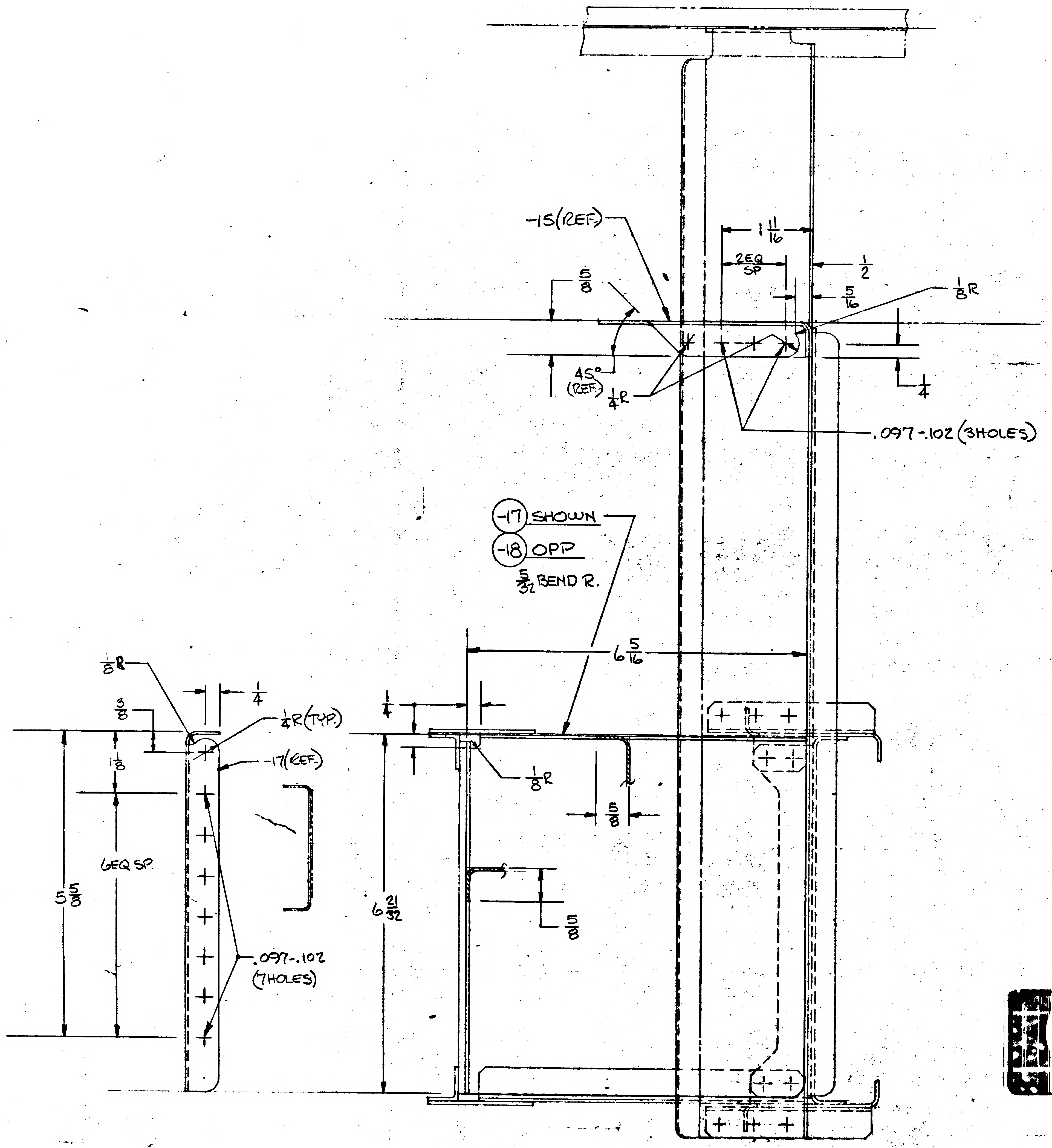
NAS 9-1100



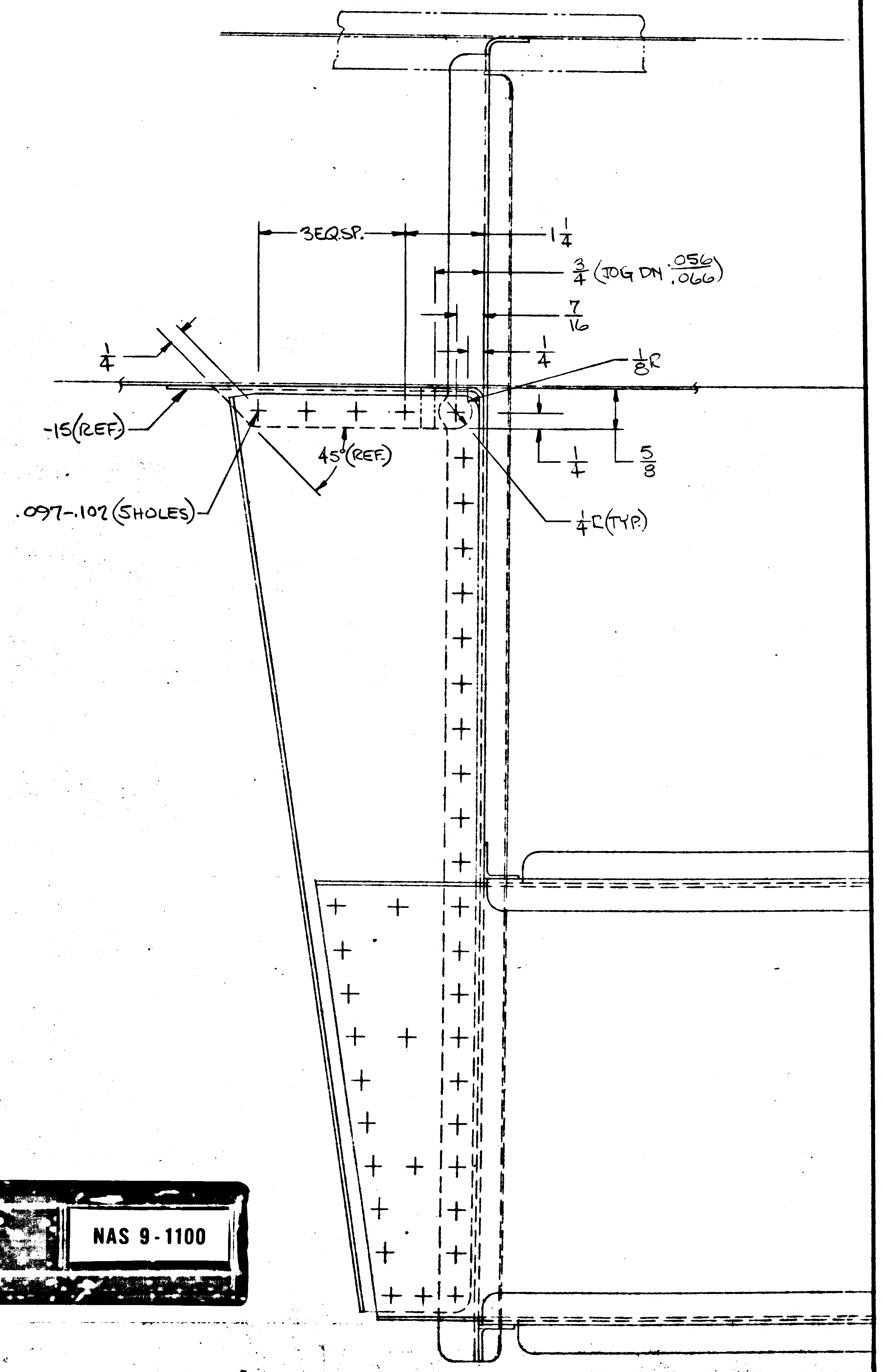
12 1/16
9 1/2
8 3/8
4 1/32
2"DIA (8 HOLES)
6 9/16
4 5/8
1 15/16
14 1/2
17 3/16
19 7/8
22 5/16
-13



-15 SHOWN
-16 OPP
5/32 BEND R.
45°
3/16
1 9/16
4 1/16
4 EQ SP.
1/4 R (TYP)
3/4
1/4
45°
7/16
2 7/8
1 1/4
1/8 R

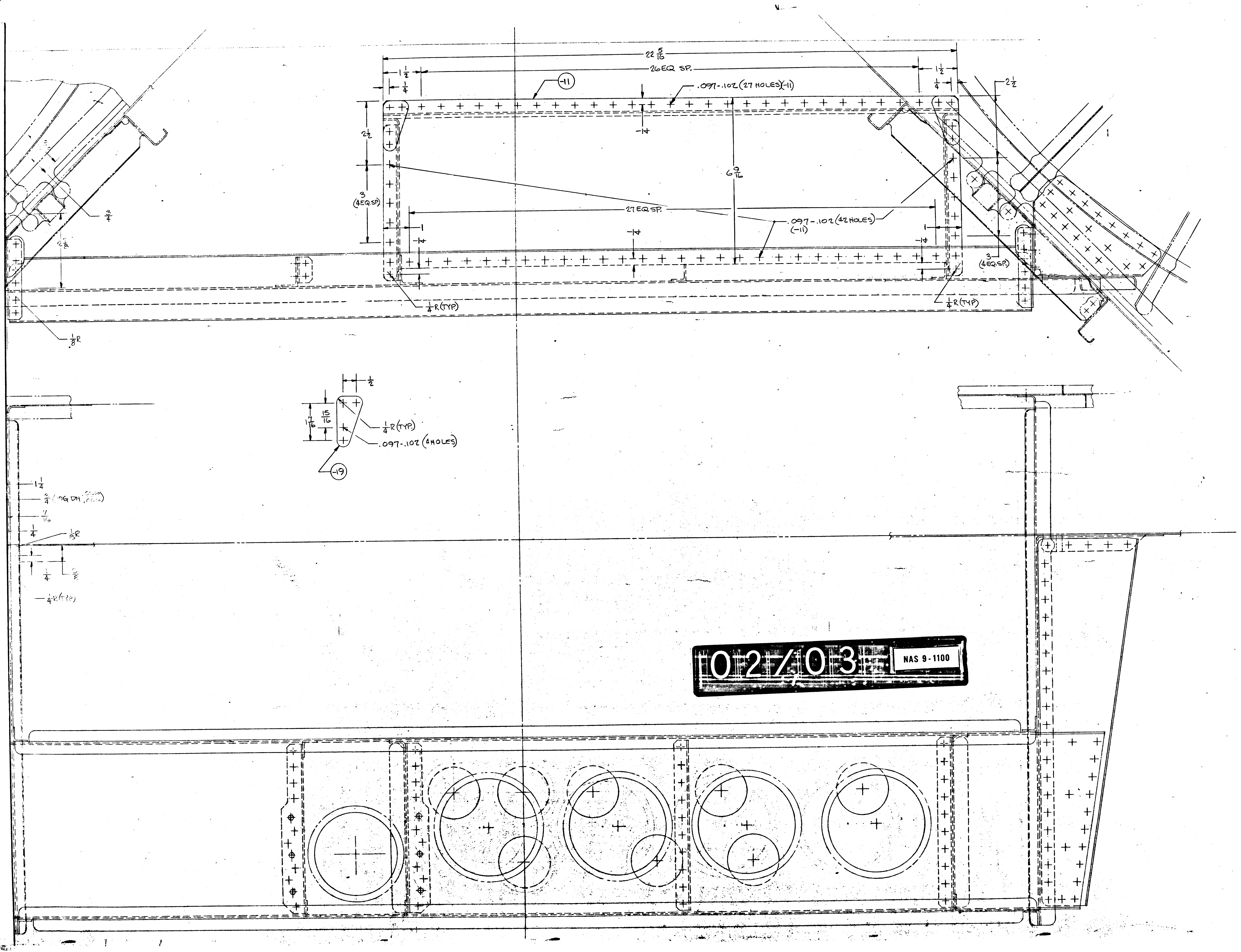


-15 (REF.)
1 11/16
2 EQ SP
1/2
5/8
5/16
1/8 R
45° (REF.)
1/4 R
1/4
.097-.102 (3 HOLES)
-17 SHOWN
-18 OPP
5/32 BEND R.
6 5/16
1/8 R
1/4
3/8
1/4 R (TYP.)
-17 (REF.)
1/8
6 EQ SP.
5 5/8
.097-.102 (7 HOLES)
1/4
1/8 R
5/8
6 21/32
5/8



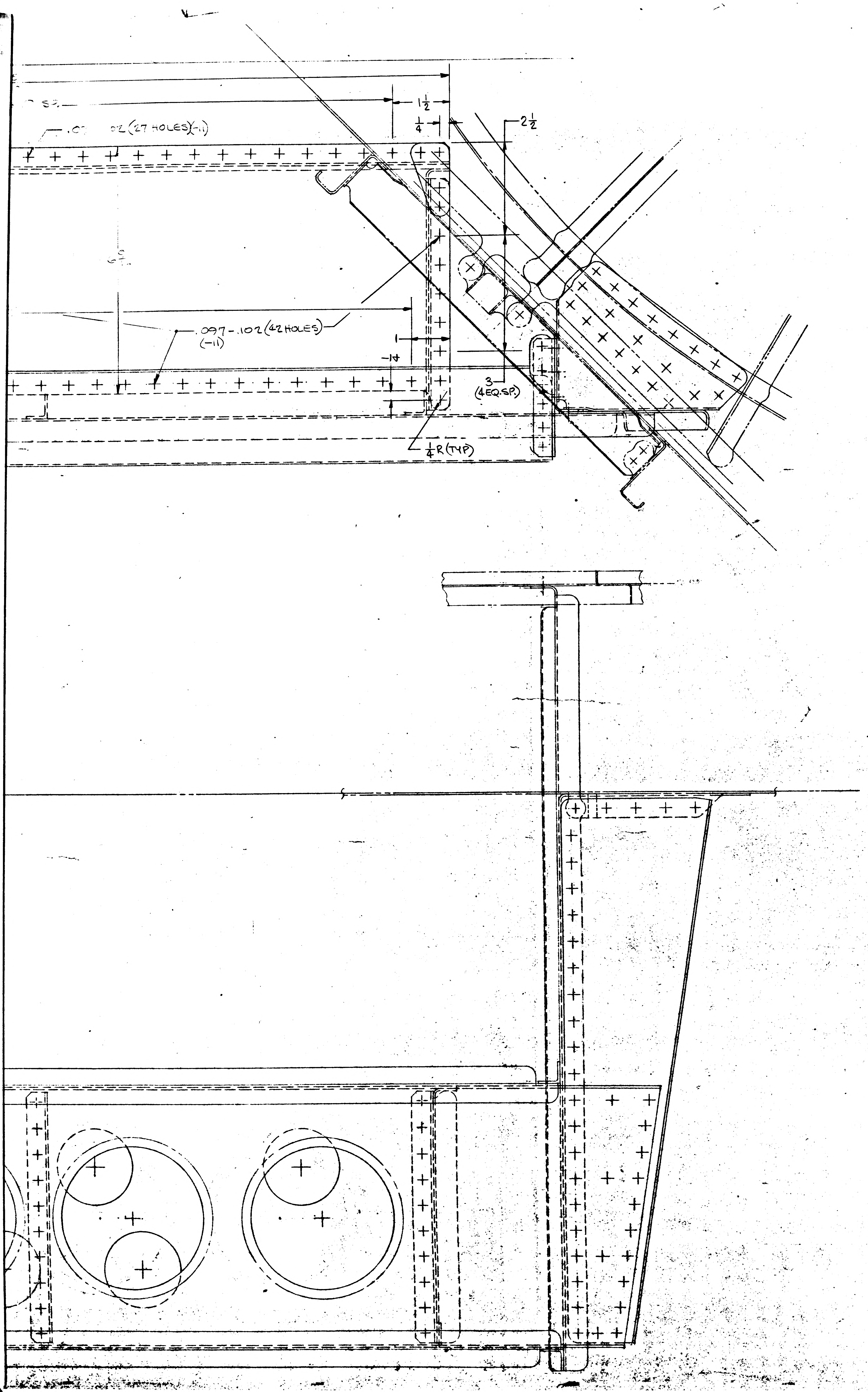
3 EQ SP.
1 1/4
3/4 (JOG DN .056/.066)
7/16
1/4
1/8 R
1/4
-15 (REF.)
45° (REF.)
1/4
5/8
.097-.102 (5 HOLES)
1/4 R (TYP)

01/03 NAS 9-1100


22 5/16
26 EQ SP.
1 1/2
1/4
1 1/2
1/4
-11
.097-.102 (27 HOLES)(-11)
2 1/2
2 1/2
1/4
6 9/16
3 (4 EQ SP.)
27 EQ SP.
.097-.102 (42 HOLES) (-11)
1
1
1/4
1/4
3 (4 EQ SP.)
1/4 R (TYP.)
1/4 R (TYP.)
1/8 R
3/4
1/2
15/16
1 7/16
1/4 R (TYP.)
.097-.102 (4 HOLES)
-19
1 1/4
1/4
1/4
1/8 R
1/4
1/4 R (TYP.)

NOTES:
1- LAYOUT RELEA
2- ALL INFORMA
LD N 280-

02/03 NAS 9-1100



NOTES:
1- LAYOUT RELEASE ~ TO BE REDRAWN ON PRODUCTION FORMAT.
2- ALL INFORMATION NOT REQ'D TO MANUFACTURE
LDW 280-18072-11 THRU -19 IS REFERENCE INFORMATION ONLY.
3- UNLESS OTHERWISE NOTE ALL CORNER RADII ARE 1/4.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	✓
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) - SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) - SQ. FT.

PRINT TRIM LINE

LDW280-18072

03/03 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-18072	
MODEL OR ENG ITEM	SCALE FULL			SHEET 3

THIS IS AN ORIGINAL DRAWING

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 236
CONTROL INFO NO. LDW280-9699

FOR THE FOLLOWING DETAILS ADD NEXT ASSY LDW280-25799 EFFECTIVE LTA-5(15) FOR QUANTITIES REQD / MODULE

DWG NO.	DASH NO.	NO REQD PER MODULE	DWG TITLE	CHANGE NO.
*LDW280-18071	-14	1	CHANNEL ~ DESCENT STAGE ~ PROP FEED LINES ~ AFT R.H. QUAD ~ G.S.E. SPT.	A2
	-16	1		
	-17	2		
	-19	2		
*LDW280-18072	-16	1	WEB ~ DESCENT STAGE PROP FEED LINES ~ AFT R.H. QUAD ~ G.S.E. SPT.	A1
	-17	1		
	-18	1		
	-19	4		
*LDW280-18073	-15	2	ANGLE ~ DESCENT STAGE PROP FEED LINES AFT R.H. QUAD. G.S.E. SPT.	A1
	-17	2		
	-18	2		
	-19	2		

* USE APPLICABLE DASH No IN DESCRIP OF EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS FOR DETAIL PARTS.

DESCRIPTION OF EO: FOR * ADDED NEXT ASSY LDW280-25799 EFFECTIVE FOR LTA-5(15).

GAEC EO RELEASE: 6 9-2

EFFECTIVITY: MODEL LEM; PROCURING ACTIVITY NO. —; GAEC UNIT NO. LTA-5(15); SUB CONTR UNIT NO. —

DRAWING CHANGE REQD: REVISE DWG ✓; RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP NOT REQD

			RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					WB		RMC(E)	Bolt
DATE	8/18/66	9/15			8/19/66		9-1	8-26-66
	VDI	~~SUPPORT~~						

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 236

ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

01 NAS 9-1100

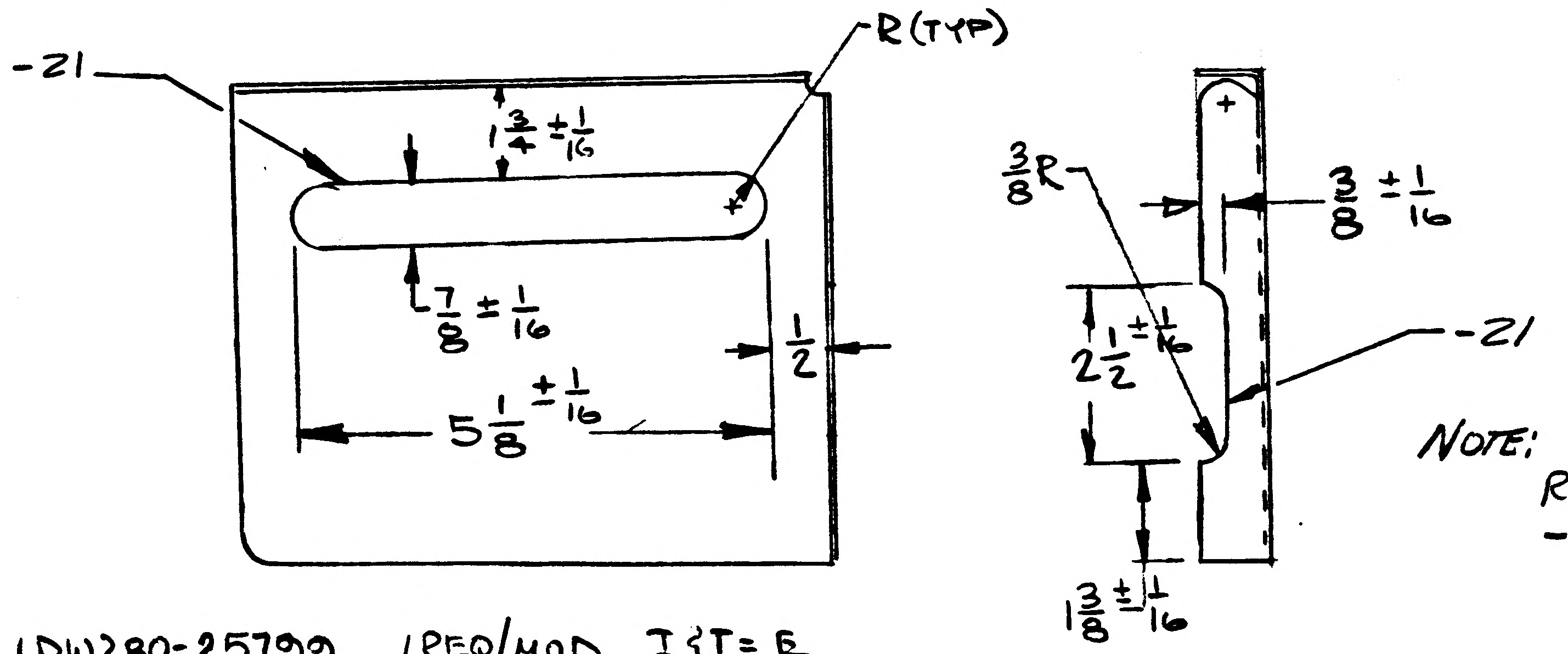
H.G.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18072 | EO NO. A2
CONTROL INFO NO. LM-2-2771

ADD LDW280-18072-21 IDENTICAL TO -18 EXCEPT AS SHOWN BELOW. BY ADDING SLOT & CUTOUT TO FLANGE


-21
R (TYP)
$1\frac{3}{4} \pm \frac{1}{16}$
$\frac{7}{8} \pm \frac{1}{16}$
$5\frac{1}{8} \pm \frac{1}{16}$
$\frac{1}{2}$
$\frac{3}{8}$R
$\frac{3}{8} \pm \frac{1}{16}$
$2\frac{1}{2} \pm \frac{1}{16}$
-21
$1\frac{3}{8} \pm \frac{1}{16}$

NOTE: -18 MAYBE REWORKED INTO -21.

-21 N/A LDW280-25799 1 REQ/MOD I&T = E
FOR -18, REMOVE LDW 280-25799 N/A. 1 PER MODULE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG						2
REASON FOR EO: INTERFERENCE BETWEEN QUICK DISCONNECT & STRUCTURE.				DESCRIPTION OF EO: FOR FLD. & B/M: ADDED -21(1), REMOVED -18(1)						Ⓡ GAEC C4 EO RELEASE FR 9/19/6
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG ✓	RECORD EO	DISPOSITION OF PARTS: REWORK ✓	SCRAP	APPROVED BY / DATE		
LM		LTA-5 (15)						9-16-66		

APPROVED BY				CAW	CAW	RMC (EO)	
DATE	10/18			9-16-66	9-16-66	9-19	9-16-66
9-16-66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB D.S.~PROP FEED LINES~AFT R.H. QUAD.	LDW280-18072	A2

ISSUED BY LIAISON/G. BARNES X1153 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

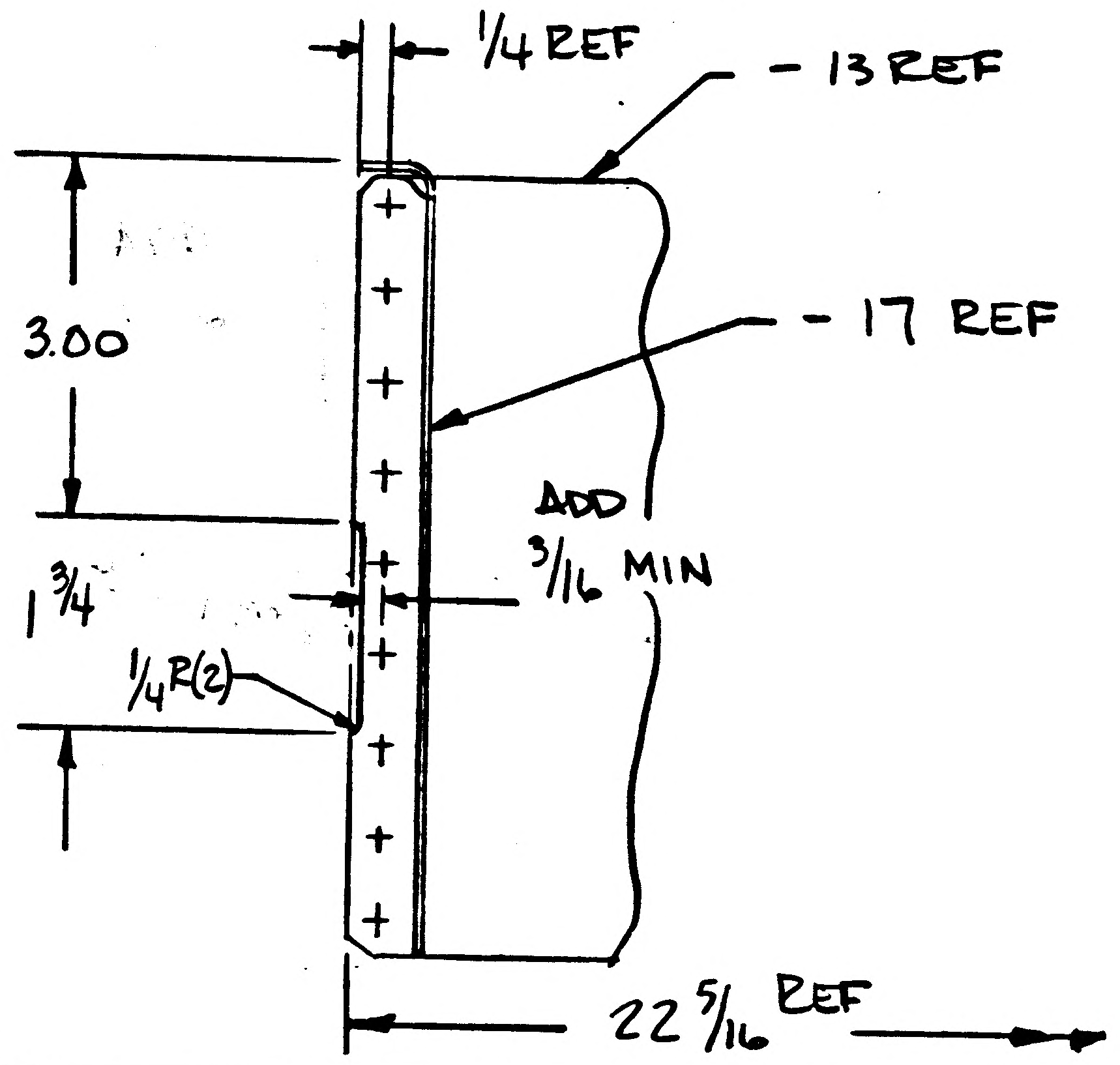
HG

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-18072
EO NO. A3
CONTROL INFO NO. LM-2-2768

ADD CUTOUT TO -13 & -17 AS SHOWN (-18 NOT AFFECTED)



FIN #76 AFTER REWORK

REWORK ALREADY ACCOMPLISHED

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: STRUCTURE INTERFERED WITH QUICK DISCONNECT COUPLING

DESCRIPTION OF EO: ADDED CUTOUT TO -13, -17, 3/16 MIN.

GAEC EO RELEASE: C FR

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-5 (15)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	JKB				CAW	CAW	RMC	
DATE	9/18				9-16-66	9-16-66	9-19	9/16/66
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: D.S. - PROP ~~FEED~~ WEB LINES - AFT R.H. QUAD - GSE SUPT
DRAWING NO.: LDW280-18072
EO NO.: A3

ISSUED BY LIAISON C. Farley X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

LDW280-18073

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25798	LTA-5(15)	1EA.
PART NO. LDW280-18073-13,-14,-19 &-20		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25798	LTA-5(15)	2EA
PART NO. LDW280-18073-11-15,-17 &-18		GAEC SCH NO. 50	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO	
LAST DASH NO. USED	-20	PRIM NO. 207	LE(001) MP-8-7-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY			
LAYOUT BY			
CHECKED BY			
GP LDR	8/3/66		
V.D.I.	8/4		
STRUCT	R.K. W/H 8/5	PROJ ENGR	R.M. Carbee 8/7
STRUCT	8/5	REL GROUP	Botti 8-10-66
WEIGHTS	8-9		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ PROP FEED LINES
AFT R.H. QUAD. ~ G.S.E. SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18073
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18073-20	E	ANGLE	AL ALLOY EXTR	QQ-A-200/3	2024T3511	DIE*13637x 6 3/8	NONE	88	
		-19						DIE*13637x 6 3/8			
		-18						DIE*13637 x 3 3/8			
		-17						DIE*13637x 3 3/8			
		-15						DIE*13637x6 7/8			
		-14						DIE*13637x6 7/8			
		-13						DIE*22637x6 7/8			
		LDW280-18073-11	E	ANGLE	AL ALLOY EXTR.	QQ-A-200/3	2024T3511	DIE*13637x22 1/2	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18073

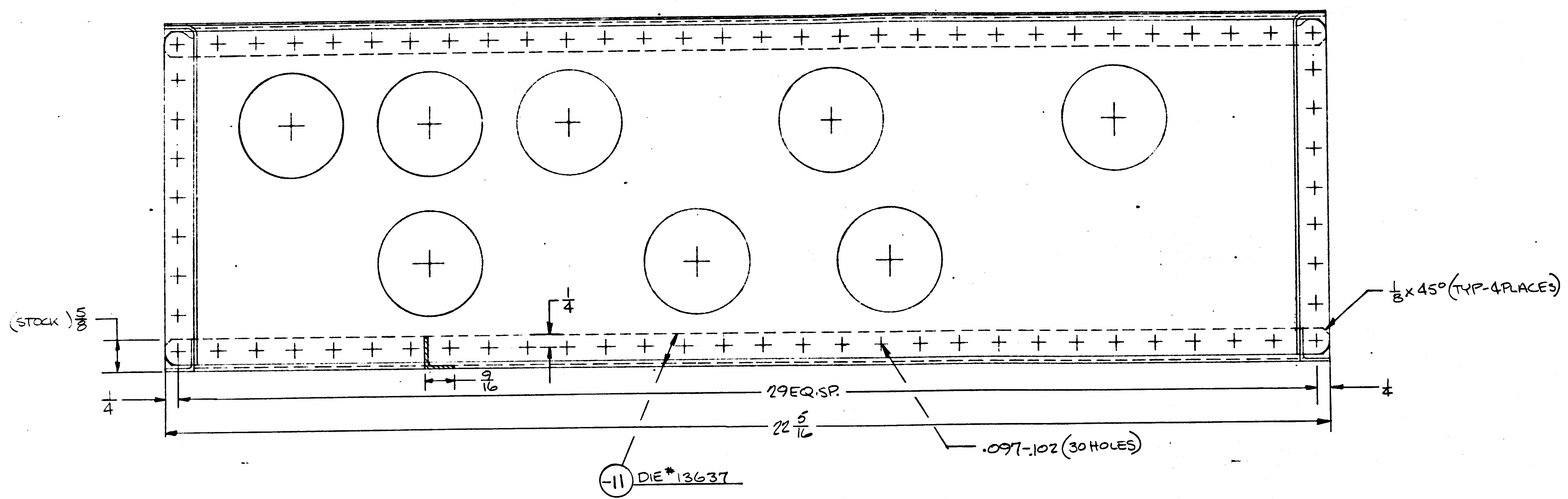
SCALE NONE

SHEET 2.00

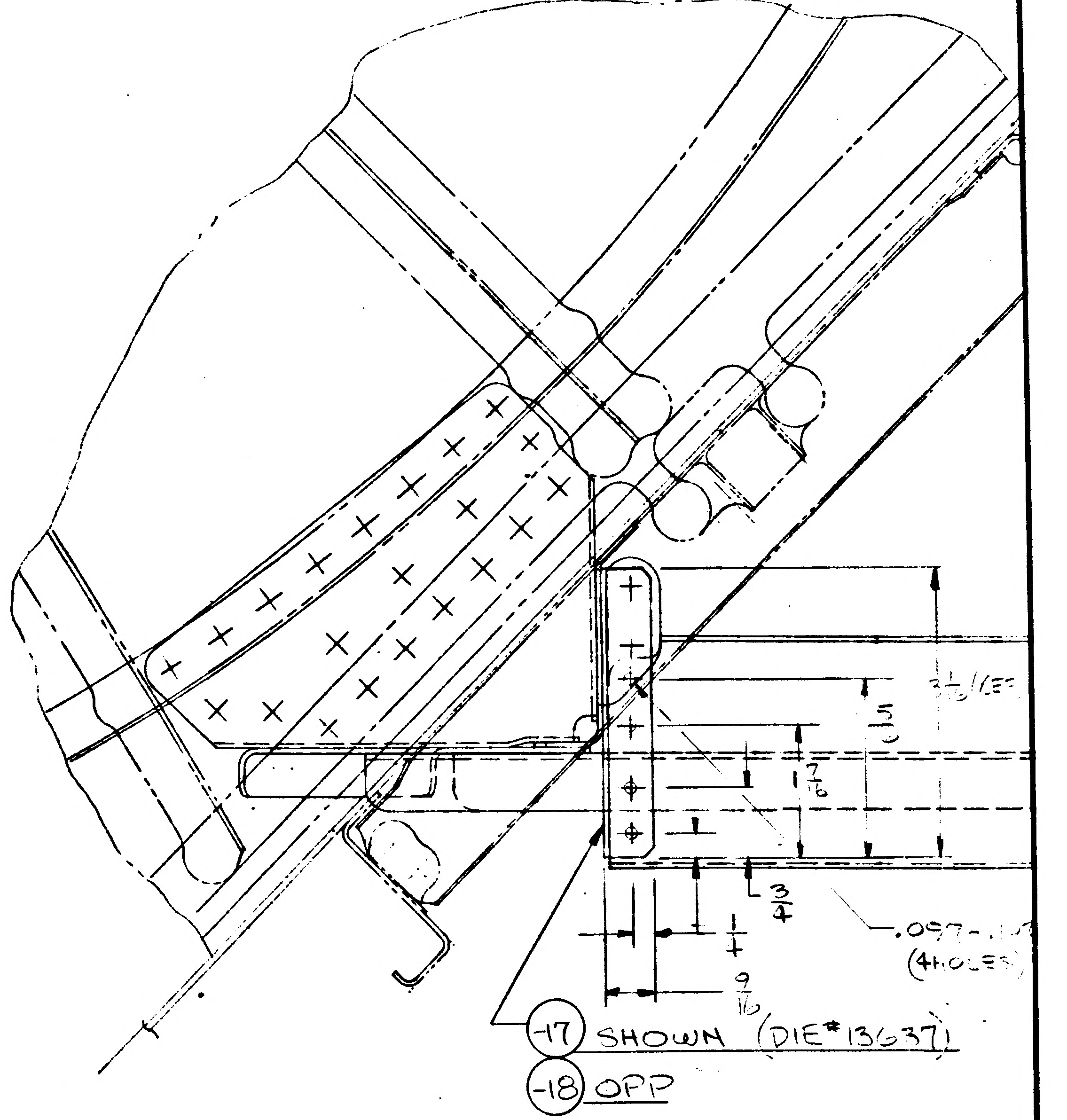
ENG 77.2 7-65

0 1

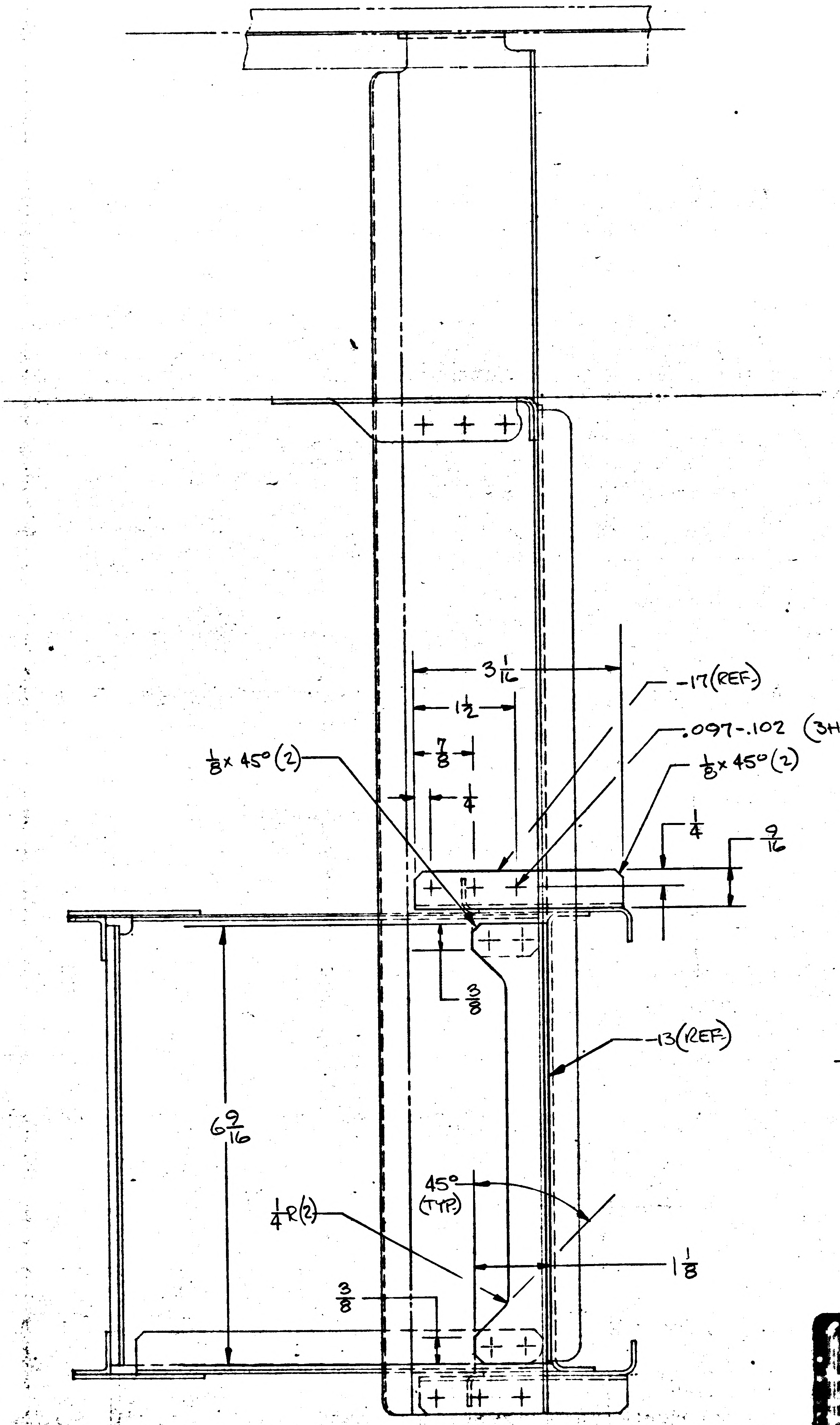
NAS 9-1100



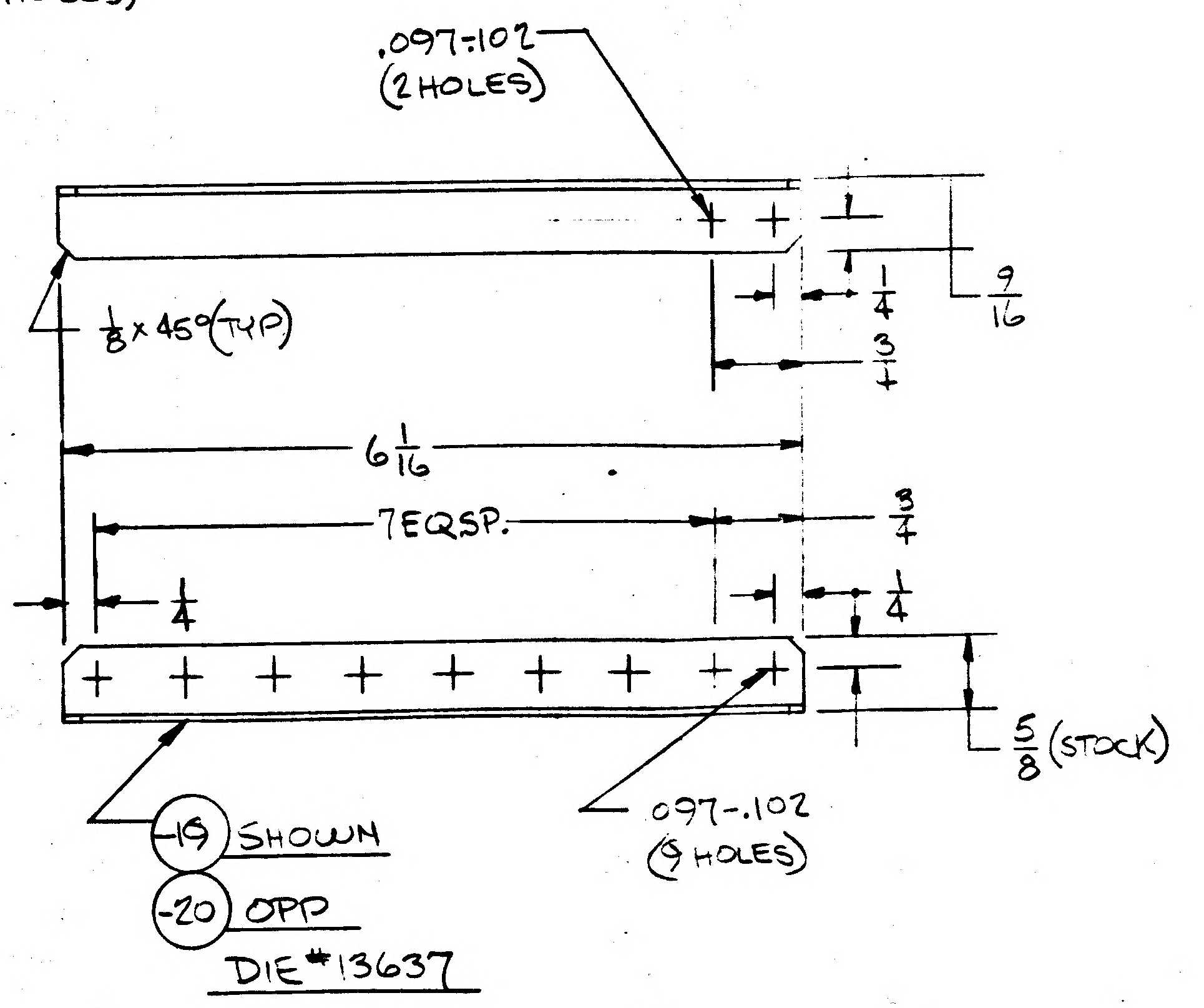
(STOCK) 5/8
1/4
9/16
1/4
29 EQ. SP.
1/4
22 5/16
1/8 x 45° (TYP-4 PLACES)
.097-.102 (30 HOLES)
-11 DIE # 13637



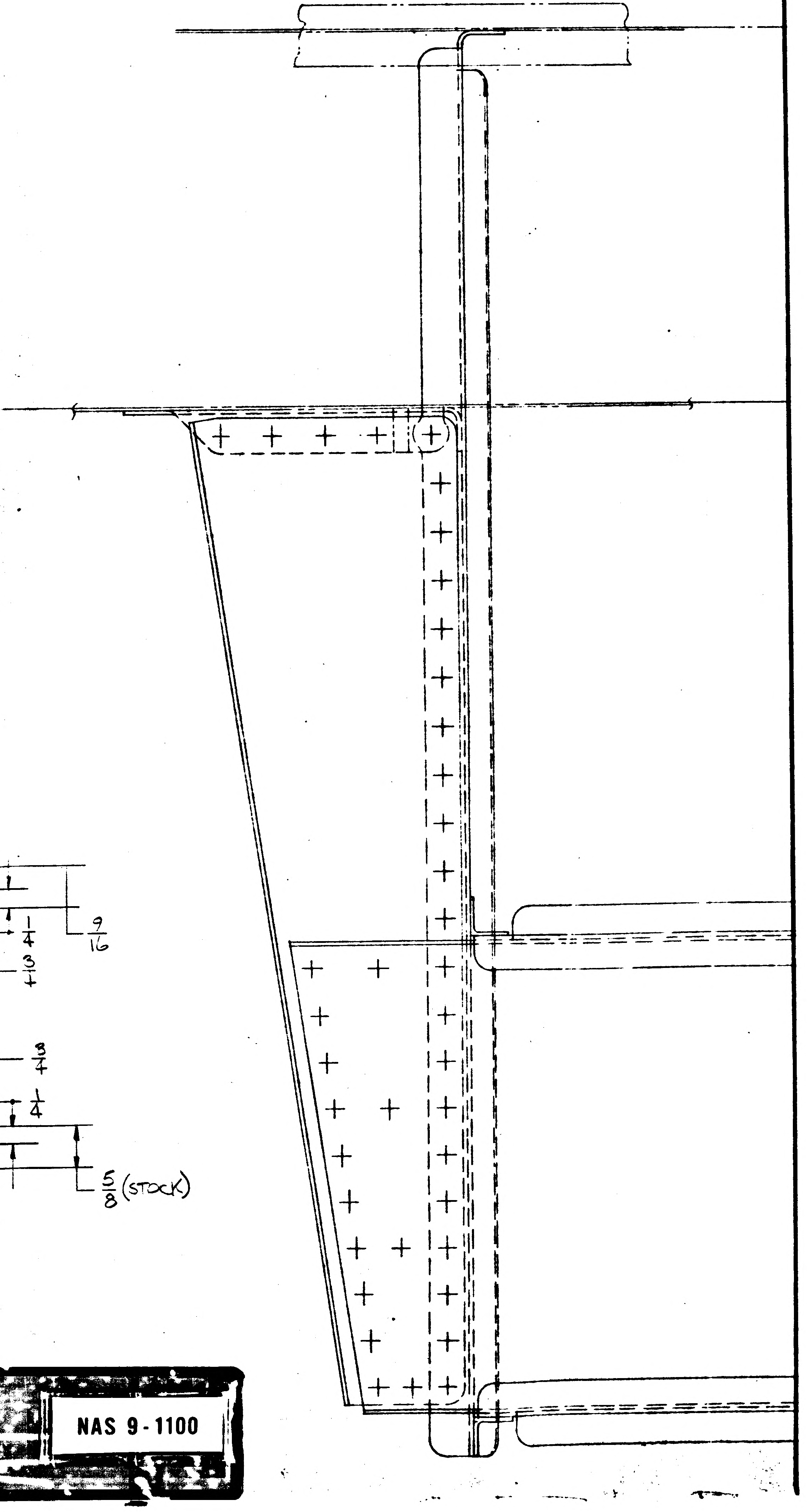
5
7/16
3/4
1/4
9/16
.097-.1
(4 HOLES)
-17 SHOWN (DIE # 13637)
-18 OPP



3 1/16
1 1/2
7/8
1/4
-17 (REF.)
.097-.102 (3 HOLES)
1/8 x 45° (2)
1/8 x 45° (2)
1/4
9/16
3/8
-13 (REF.)
6 9/16
45° (TYP)
1/4 R (2)
1 1/8
3/8



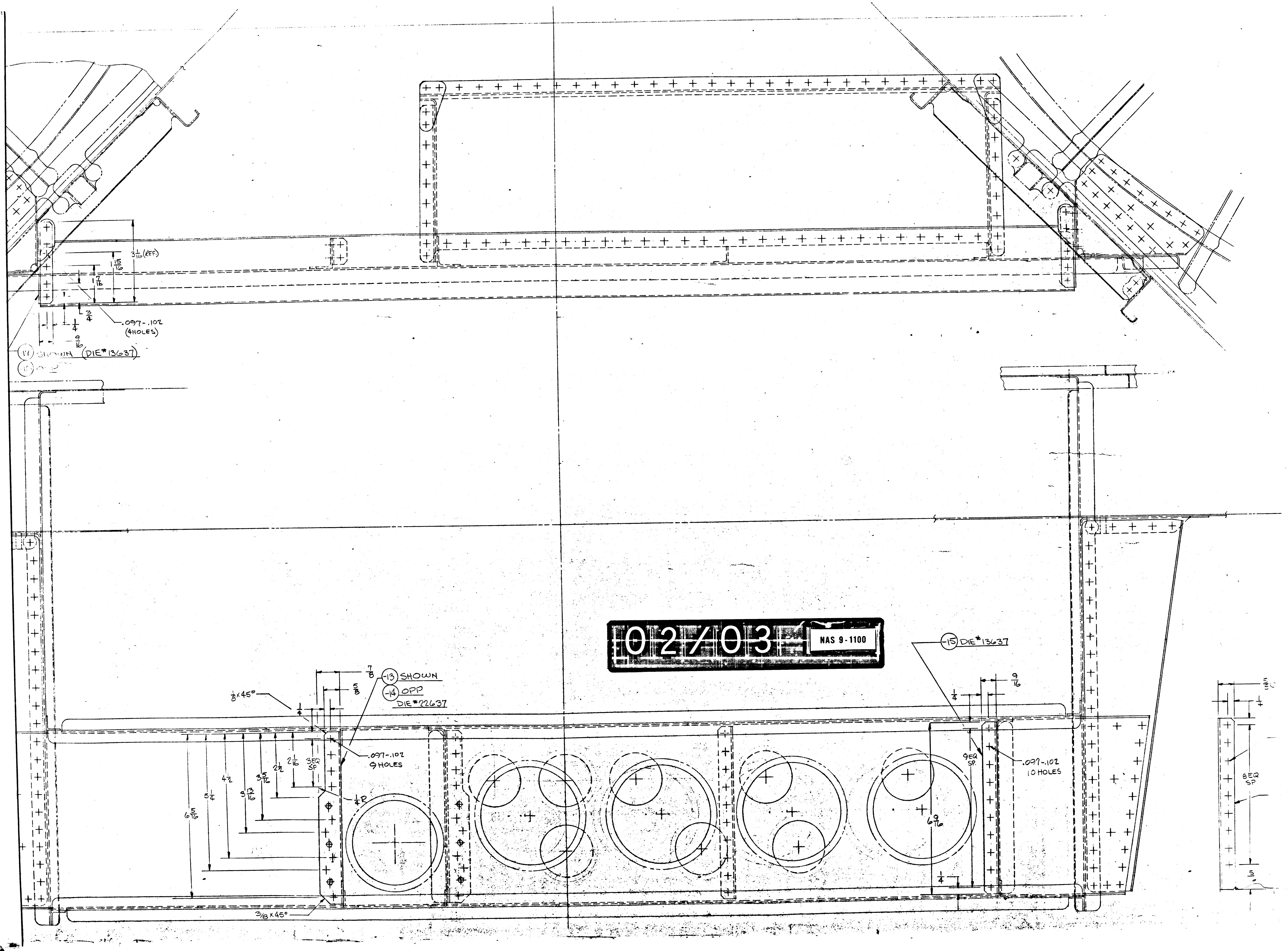
.097-.102 (2 HOLES)
1/8 x 45° (TYP)
1/4
9/16
3/4
6 1/16
7 EQ SP.
3/4
1/4
1/4
5/8 (STOCK)
-19 SHOWN
-20 OPP
DIE # 13637
.097-.102 (9 HOLES)



3/3

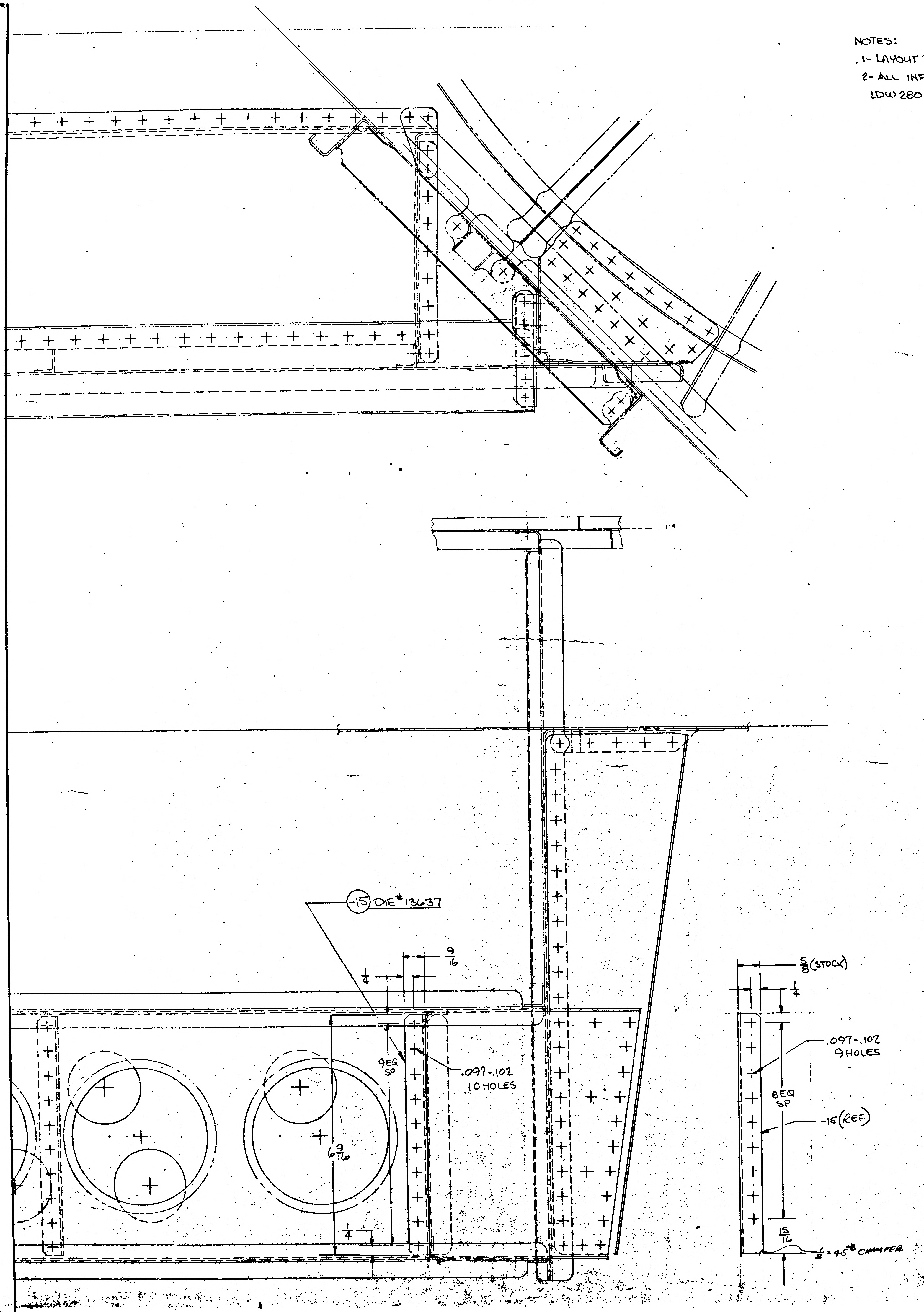
01/03

NAS 9-1100


3 1/16 (REF)
15/16
7/16
3/4
1/4
9/16
.097-.102
(4 HOLES)
-11 SHOWN (DIE#13637)
-12 OPP
7/8
5/8
1/4
1/8 x 45°
-13 SHOWN
-14 OPP
DIE#22637
.097-.102
9 HOLES
2 1/16
3 EQ SP
2 1/2
3 5/16
3 13/16
4 1/2
5 1/4
6 5/16
1/4 R
3/8 x 45°
02/03
NAS 9-1100
-15 DIE#13637
9/16
1/4
9 EQ SP
.097-.102
10 HOLES
6 9/16
1/4
5/8
1/4
8 EQ SP
3

NOTES:
1- LAYOU
2- ALL I
LDW28

NOTES:
1- LAYOUT RELEASE ~ TO BE REDRAWN ON PRODUCTION FORMAT.
2- ALL INFORMATION NOT REQ'D TO MANUFACTURE LDW 280-18073-11THRU-20 IS REFERENCE INFORMATION ONLY.



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	✓
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

03/03
NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LEM	SIZE J	CODE IDENT NO. 26512	LDW280-3073	
MODEL OR END ITEM	SCALE FULL		SHEET 3	

THIS IS AN ORIGINAL DRAWING

ENO 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 236
CONTROL INFO NO. LDW280-9699

FOR THE FOLLOWING DETAILS ADD NEXT ASSY LDW280-25799 EFFECTIVE LTA-5(15) FOR QUANTITIES REQD / MODULE

DWG NO.	DASH NO.	NO REQD PER MODULE	DWG TITLE	CHANGE NO.
*LDW280-18071 ✓	-14	1	CHANNEL ~ DESCENT STAGE ~ PROP FEED LINES ~ AFT R.H. QUAD ~ G.S.E. SPT.	A2
	-16	1		
	-17	2		
	-19	2		
*LDW280-18072 ✓	-16	1	WEB ~ DESCENT STAGE PROP FEED LINES ~ AFT R.H. QUAD ~ G.S.E. SPT.	A1
	-17	1		
	-18	1		
	-19	4		
*LDW280-18073 ✓	-15	2	ANGLE ~ DESCENT STAGE PROP FEED LINES AFT R.H. QUAD. G.S.E. SPT.	A1
	-17	2		
	-18	2		
	-19	2		

* USE APPLICABLE DASH No IN DESCRIP OF EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS FOR DETAIL PARTS.

DESCRIPTION OF EO: FOR * ADDED NEXT ASSY LDW280-25799 EFFECTIVE FOR LTA-5(15).

GAEC EO RELEASE: 6 9 2

MODEL: LEM
EFFECTIVITY — PROCURING ACTIVITY NO.: — GAEC UNIT NO.: LTA-5(15) — SUB CONTR UNIT NO.:

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP — NOT REQD

APPROVED BY: JHB —
DATE: 8/18/66 — 9/15
V.D.I. — SUPPORT — RELIAB. GROUP — GROUP LEADER — STRESS GROUP WB 8/19/66 — LIAISON ENGRG — PROJ ENGRG RMC(E) 9-1 — GAEC Botti 8-26-66

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 236

ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

01 NAS 9-1100

H G.

ENG 32.1 REV 3-65

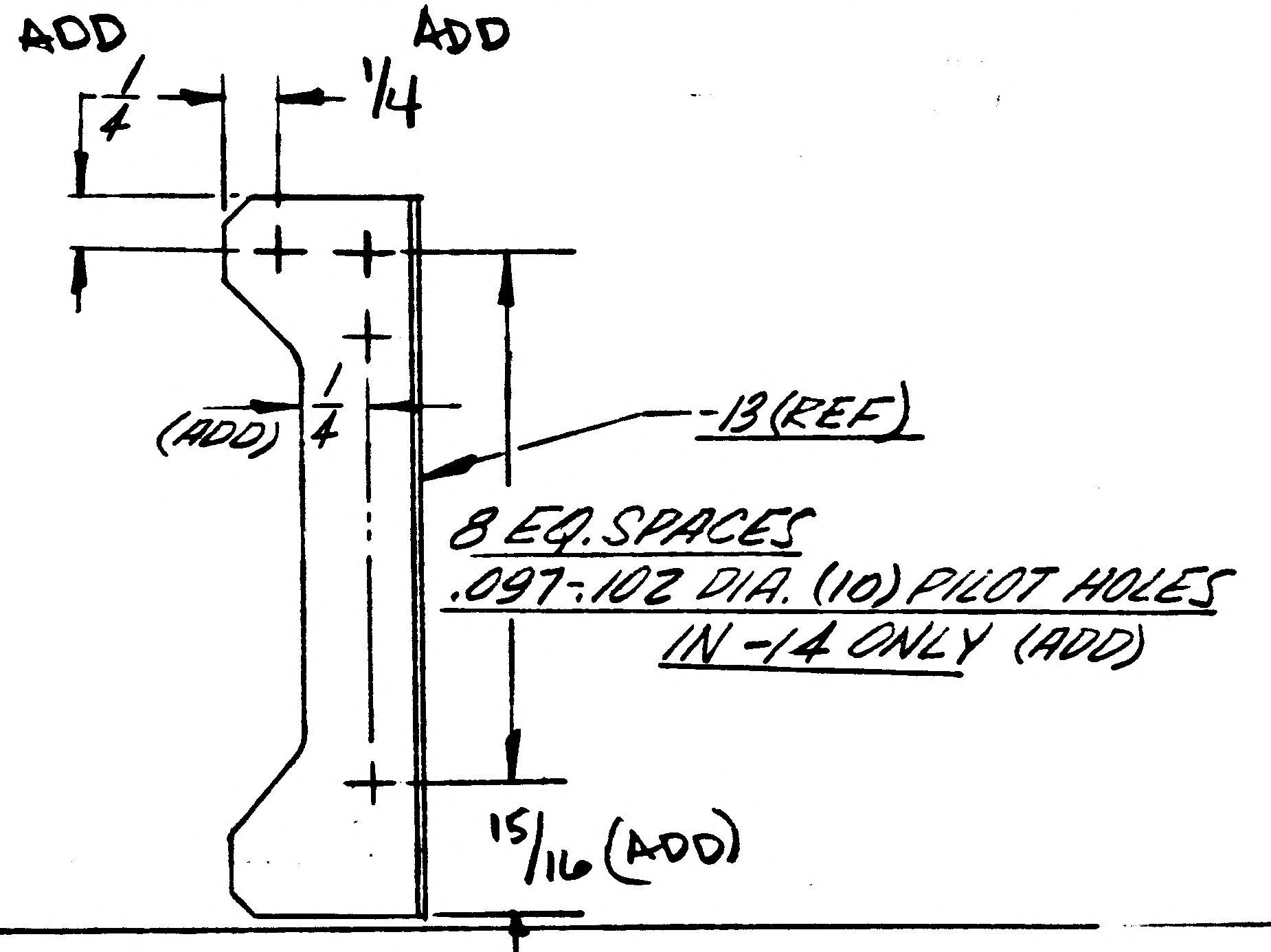
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18073	EO NO. A2
CONTROL INFO NO. LEM-2-2752	

IN FIELD FOR-14 ADD (.097-.102 DIA.) PILOT HOLES AS SHN:

(1.)



(2.) NOTE: IN FIELD ADD "EXCEPT FOR PILOT HOLES" AS SHOWN:

-13 SHOWN (REF)
-14 OPP. (REF) (EXCEPT FOR PILOT HOLES) (ADD) DIE #22637 (REF)

(3.) IN B/M FOR-19 & -20:

	NEXT ASSEMBLY	REQ'D PER MODULE
FOR-19	LDW280-25799	S/B (1) WAS (2)
FOR-20	LDW280-25799	S/B (1) WAS —

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO
HOLES REQUIRED TO LOCATE ATTACHMENTS ON NEXT ASSEMBLY.
OPP. PART REQD FOR PROPER ASSY

DESCRIPTION OF EO
IN FIELD: FOR -14 ADDED (.097-.102 DIA.) (10) & LOC. DIMS
IN B/M, FOR -19 (1) WAS (2); ADDED -20, N/A LDW280-25799, 1 REQD

GAEC EO RELEASE 4
FR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-5(15)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	✓ REWORK	-19 SCRAP

APPROVED BY	JHS	AAR			CAW	EAW	RMC	JRY
DATE	9/12/66	10-4			9-12-66	9-12-66	9-13	9/12/66
9-12-66	VDE	~~SUPPORT~~ WS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SOVE~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE D.S.~PROP FEED LINES AFT R.H. QUAD~	LDW280-18073	A2

ISSUED BY LIAISON / E. NEFF X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

LDW280-18074

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
								LEM	LDW280-25799	LTA-5(15)	1EA
PART NO.		GAEC SCH NO.		PART NO.		GAEC SCH NO.		PART NO. LDW280-18074 -11, -13, -15, -16, -17		GAEC SCH NO. 50-2	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: A
LAST DASH NO. USED: -17

GRUMMAN REL INFO
PRIM NO. 207
LE(001) MP-8-22-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ~ ±.010 ~ ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY	G.W.H.	RELIABILITY	
LAYOUT BY	HANSHANN		
CHECKED BY			
GP LDR	8/18/66		
V.D.I.	8/19		
STRUCT	R.K. SM 8/19	PROJ ENGR	R. Mc[illegible] 8-20
STRUCT	Hilderman 8/19	REL GROUP	Botti 8-29-66
WEIGHTS	8-29		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE ~ LOWER DECK ~
QUAD 4 ~ G.S.E SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18074
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

C.D.R. 8/19/66

30

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18074-17	E	PLATE	AL. ALLOY SH	QQ-A-250/4	2024-T3	.125x4 3/8x13 5/8	NONE	88	
		-16		CHANNEL				.050x3 1/8x6 5/8			
		-15		CHANNEL				.050x3 1/8x6 5/8			
		-13		ANGLE				.050x2x16 1/8			
		LDW280-18074-11	E	ZEE	AL. ALLOY SH.	QQ-A-250/4	2024-T3	.050x3 1/2x14 1/8	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18074

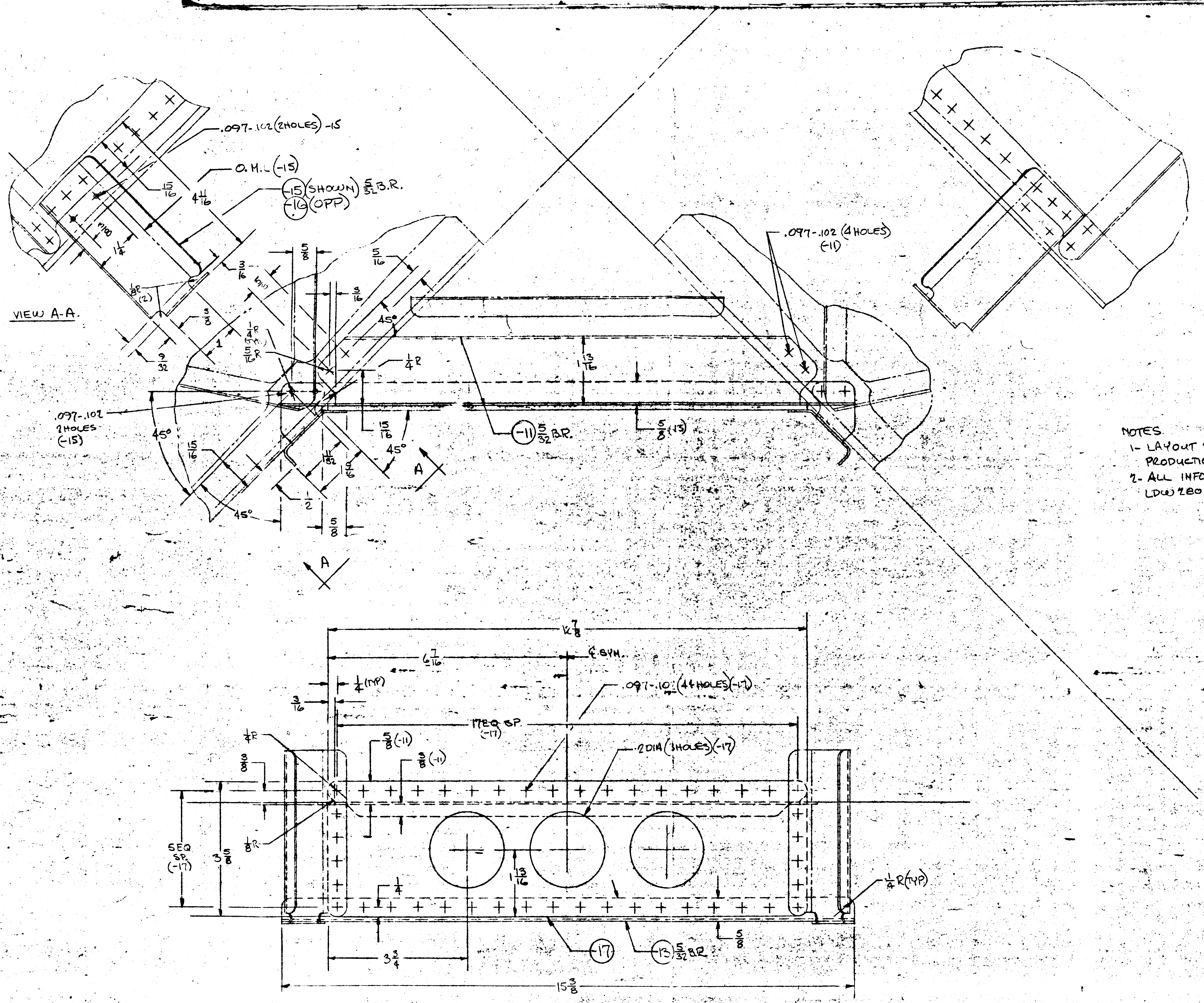
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


VIEW A-A.
.097-.102 (2HOLES) -15
O.M.L (-15)
(-15) (SHOWN) 5/32 B.R.
(-16) (OPP)
15/16
4 11/16
1 1/4
3/16
1/8 R (2)
3/8
9/32
1
5/8
5/16
3/16
45°
1/4 R (TYP)
5/16 R
1/4 R
1 13/16
.097-.102 2HOLES (-15)
45°
15/16
15/16
11/32
1 9/16
1/2
5/8
45°
45°
A
A
(-11) 5/32 B.R.
5/8 (-13)
.097-.102 (4 HOLES) (-11)
16 7/8
6 7/16
℄ SYM.
1/4 (TYP)
3/16
.097-.10 (44 HOLES) (-17)
17 EQ SP. (-17)
1/4 R
3/8
5/8 (-11)
3/8 (-11)
2 DIA (3 HOLES) (-17)
5 EQ SP. (-17)
3 5/8
1/8 R
1 13/16
1/4
1/4 R (TYP)
3 3/4
(-17)
(-13) 5/32 B.R.
5/8
15 3/8

NOTES.
1- LAYOUT RELEASE ~ TO BE REDRAWN ON PRODUCTION FORMAT.
2- ALL INFORMATION NOT REQ'D TO MANUFACTURE LDW 280-18074-11 THRU -17 IS REF INFO ONLY.

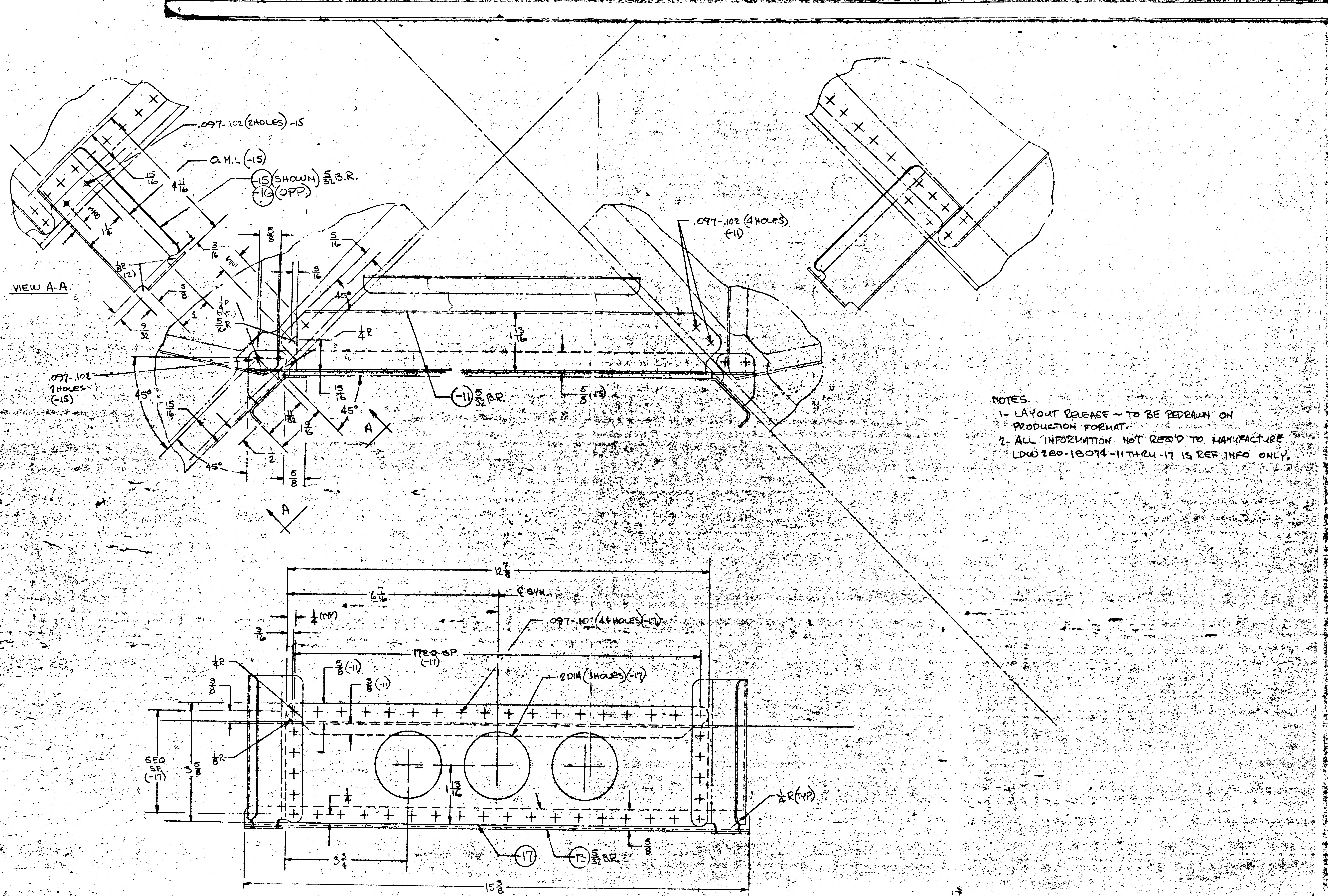
01/02

NAS 9-1100

	SIZE
LEM	J
MODEL OR END ITEM	SCALE

THIS IS AN ORIGI

ORIGINAL CANNO



.097-.102 (2 HOLES) -15
O.M.L (-15)
(-15) (SHOWN) 5/32 B.R.
(-16) (OPP)
15/16
4 1/16
1 1/4
3/16
5/16
5/8
3/8
9/32
VIEW A-A
.097-.102 (4 HOLES) (-11)
45°
1 3/16
1/4 R
(-11) 5/32 B.R.
5/8 (-13)
.097-.102 2 HOLES (-15)
15/16
1/2
5/8
A
A
12 7/8
6 7/16
℄ SYM.
1/4 (TYP)
3/16
.097-.102 (44 HOLES) (-17)
17 EQ SP. (-17)
5/8 (-11)
3/8 (-11)
.201 DIA (3 HOLES) (-17)
1/8 R
3/8
5 EQ SP. (-17)
3 5/8
1 3/16
1/4
1/4 R (TYP)
(17)
(13) 5/32 BR
5/8
3 3/4
15 3/8

NOTES.

1- LAYOUT RELEASE ~ TO BE REDRAWN ON PRODUCTION FORMAT.

2- ALL INFORMATION NOT REQ'D TO MANUFACTURE LDW 280-18074-11 THRU -17 IS REF INFO ONLY.

MANUFACTURING OPERATIO

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS

☑ 8BEQ STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.001

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

027/02 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE J	CODE IDENT NO. 26512	LDW 280-18074
LEM			
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

THIS IS AN ORIGINAL DWG.
ORIGINAL CANNOT BE FOUND.

LDW280-18075 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25799	LTA-5(15)	1EA
PART NO. LDW280-18075 -11, -13, -15, -17, -19		GAEC SCH NO. 50-2	

WORK PKG FUNCTION #110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00		3.00			
REV	A	A		A		A			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO ▲		
LAST DASH NO. USED	-19	PRIM NO. 207	JL MP 5	A 7-6-67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.031 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS-9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	G.W.H	RELIABILITY	
LAYOUT BY	HANSMANN		
CHECKED BY			
GP LDR	J. STRAKOSCH 8/16/66		
VDI	BISCHOFF 8/19		
STRUCT	F.E.B. 8/19	PROJ ENGR	R.M. CARBEE 8-20
STRUCT	HILDERMAN 8/19	REL GROUP	BOTTI 8-29-66
WEIGHTS	D.ROBESCH 8/29		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-LOWER DECK-QUAD 4
GRD SPT EQUIP SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18075	A
SCALE	NONE	SHEET 1.00 OF 4	

▲ SUPERSEDES LDW280-18075 NC 8-29-66

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED NO CHG.—LAST REVISION NO CHG. ADDED SH 1.10 - LOFTED DWG WAS DIM. F.LEGIDO-6-27-67				LEGIDO 6-27-67		
A	1	1.10&3.7	5A					EOA1	ADDED 9/16 HOLE IN -11.	LTA-5(15)	✓			☒	

CHG APPROVED	LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	RELIABILITY				
	A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18075	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18075-19	E	WEB	AL. ALY SH.	QQ-A-250/4	2024-T3	.032 x 7¾ x 8	NONE	88	3C
		-17		CHANNEL				.050 x 3¾ x 4½			3D
		-15		ZEE				.050 x 4 x 24⅜			4C
		-13		ANGLE				.050 x 2¾ x 14⅞			5D
		LDW280-18075-11	E	CHANNEL	AL. ALY SH.	QQ-A-250/4	2024-T3	.050 x 8¾ x 44¾	NONE	88	2A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

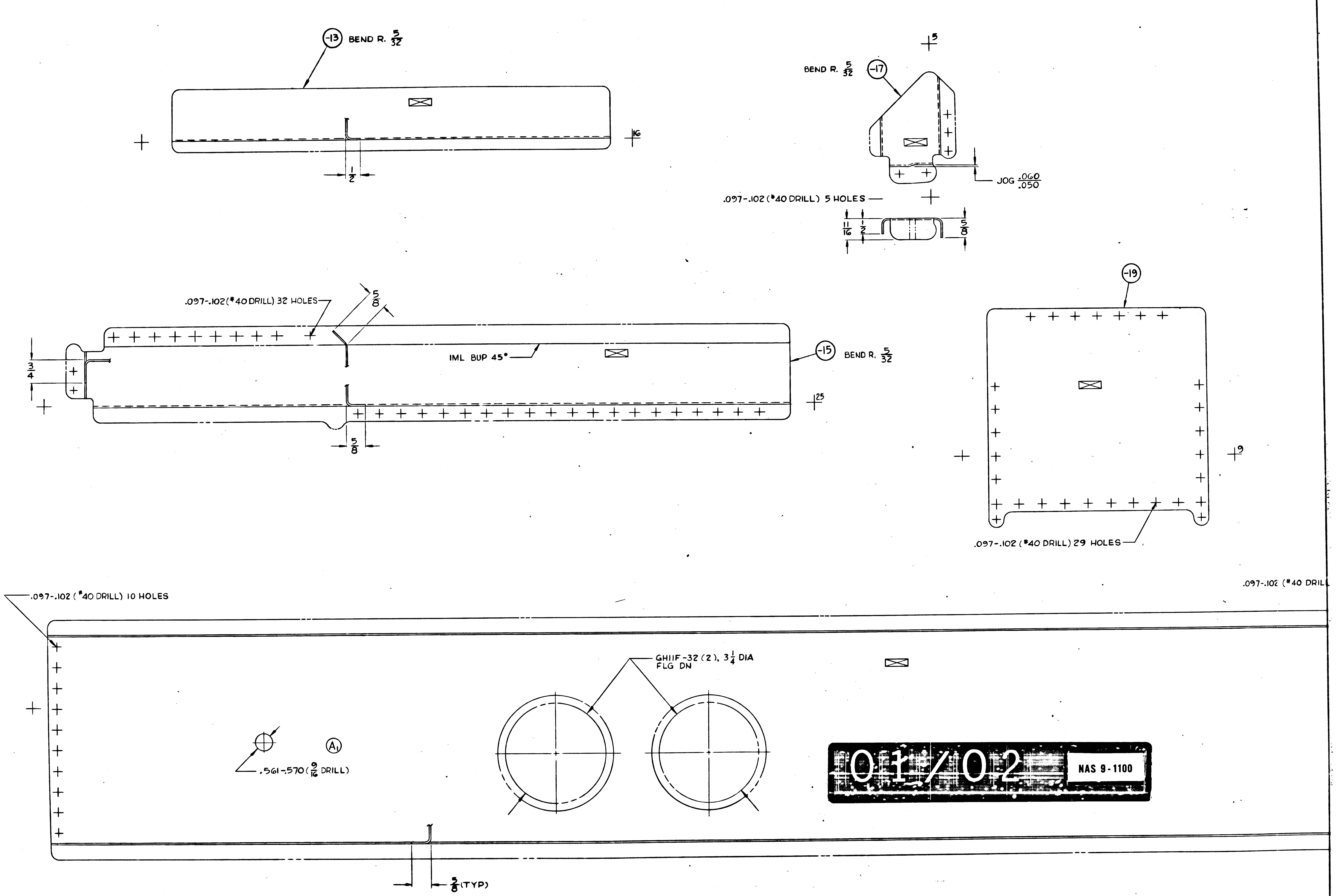
SIZE	CODE IDENT NO.		
B	26512	LDW280-18075	A

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

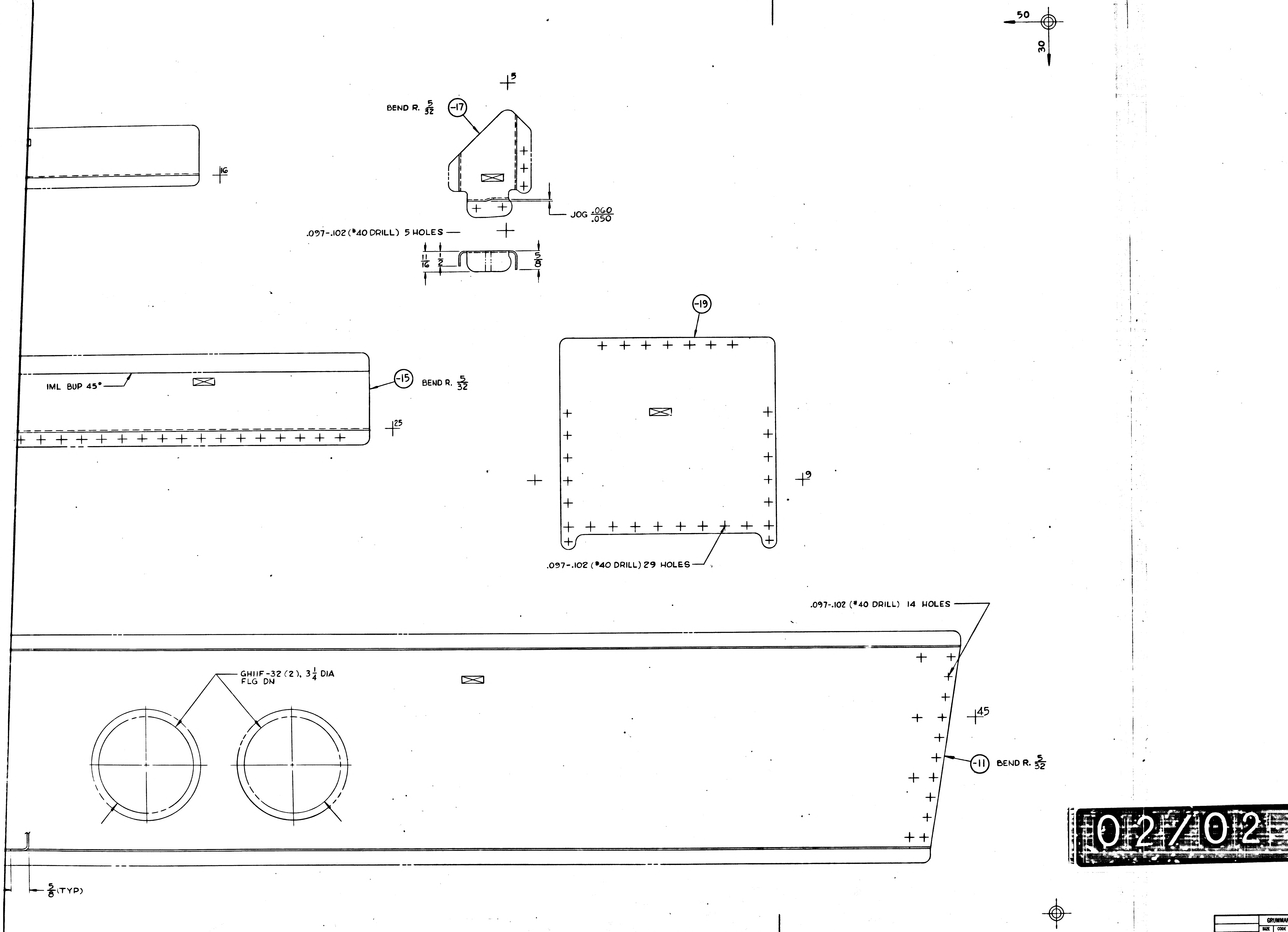
NAS 9-1100



-13 BEND R. 5/32
1/2
16
BEND R. 5/32 -17
5
JOG .060/.050
.097-.102 (#40 DRILL) 5 HOLES
11/16
1/2
5/8
.097-.102(#40 DRILL) 32 HOLES
5/8
IML BUP 45°
-15 BEND R. 5/32
3/4
25
5/8
-19
9
.097-.102 (#40 DRILL) 29 HOLES
.097-.102 (#40 DRILL) 10 HOLES
.097-.102 (#40 DRIL
GHIIF-32 (2), 3 1/4 DIA
FLG DN
A1
.561-.570 (9/16 DRILL)
5/8 (TYP)

01/02 NAS 9-1100

LDW280-18075 SHEET 3


50
30
5
BEND R. 5/32
-17
16
JOG .060/.050
.097-.102 (#40 DRILL) 5 HOLES
11/16
1/2
5/8
-19
IML BUP 45°
-15
BEND R. 5/32
25
9
.097-.102 (#40 DRILL) 29 HOLES
.097-.102 (#40 DRILL) 14 HOLES
GH11F-32 (2), 3 1/4 DIA
FLG DN
45
-11
BEND R. 5/32
5/8 (TYP)

02/02 NAS 9-1100

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 76)= 19.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 5.0 SQ. FT.
PRINT TRIM LINE

LDW280-18075-A

LDW280-18075-A

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18075	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

LDW280-18075 SHEET 3

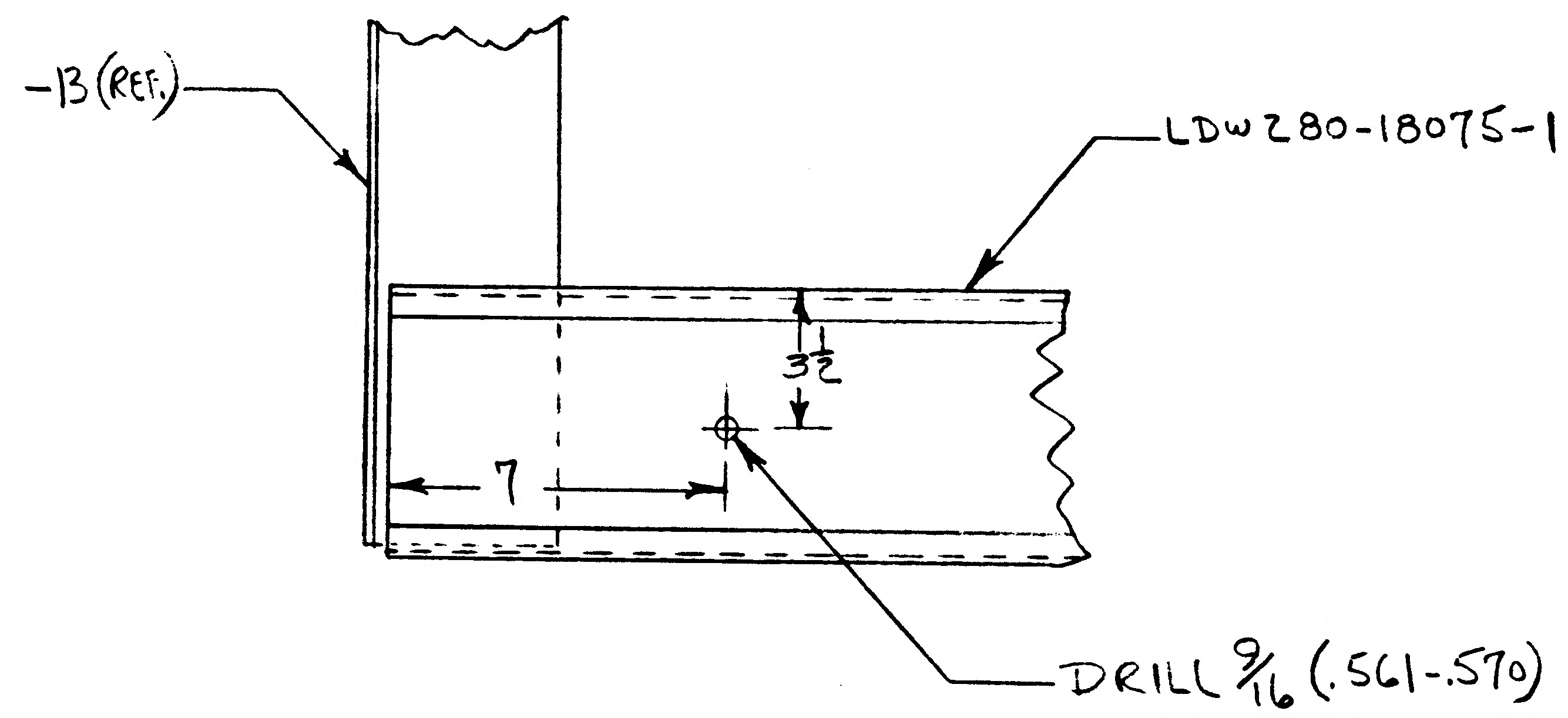
FOR PHOTO REPRODUCTION

K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18075
EO NO. A1
CONTROL INFO NO. LDW 82-2597



2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO PROVIDE HOLE FOR ENGINE PURGE LINE.

DESCRIPTION OF EO: ADDED 9/16 HOLE IN -11

GAEC EO RELEASE: VE 12/21

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-5 (15)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
						PJS	RB	
DATE						12-6-66	12/6/66	12/6/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S-LOWER DECK CHANNEL QUAD. FOR GSE SUPP.	LDW280-18075	A1

ISSUED BY P. DUGAN X5214 SECTION DEV. ENGG/WSTF-MSC GROUP NO. 862 PL 82

01 NAS 9-1100

LDW280-18076

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25718	LTA-5 (15	2
PART NO. LDW280-18076-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25718	LTA-5(15	1 EA.
PART NO. LDW280-18076-11, -13 -15 & -17		GAEC SCH NO. 501	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: E
LAST DASH NO. USED: -19
GRUMMAN REL INFO
PRIM NO. 207
GE(001)
MP-8-20-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .02 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY
LAYOUT BY A. CINO 8/8/66
CHECKED BY
G.R. LEADER [illegible] 8/16/66
VEH. DES. INT [illegible] 8/16
STRUCT. WPD [illegible] 8/16
STRUCT. Hilderman 8/19
WEIGHTS. [illegible] 8-26
RELIABILITY
PROJ ENGR [illegible] 8-19
REL. GROUP Botti 8-29-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE UPPER DECK
OX. VENT G.S.E. COUPLING

SIZE B
CODE IDENT NO. 26512
LDW280-18076
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR = 8/19

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHG, LAST REV. NO CHG LOFTED DWG WAS DIM. DWG ADDED SH 1.10 L.DIXON 7-13-67						

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18076
SCALE NONE		SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18076-19	E	PLATE	AL ALY SH	QQ-A-250/4	2024-T3	.090 × 3/4 × 1 1/2	NONE	88	
		-17	E	ANGLE	↑	↑	↑	.063 × 2 × 4	↑	↑	
		-15	E	ANGLE				.063 × 2 × 4 1/2			
		-13	E	ANGLE	↓	↓	↓	.071 × 3 7/8 × 5	↓	↓	
		LDW280-18076-11	E	CHANNEL	AL ALY SH	QQ-A-250/4	2024-T3	.071 × 10 × 16 1/2	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

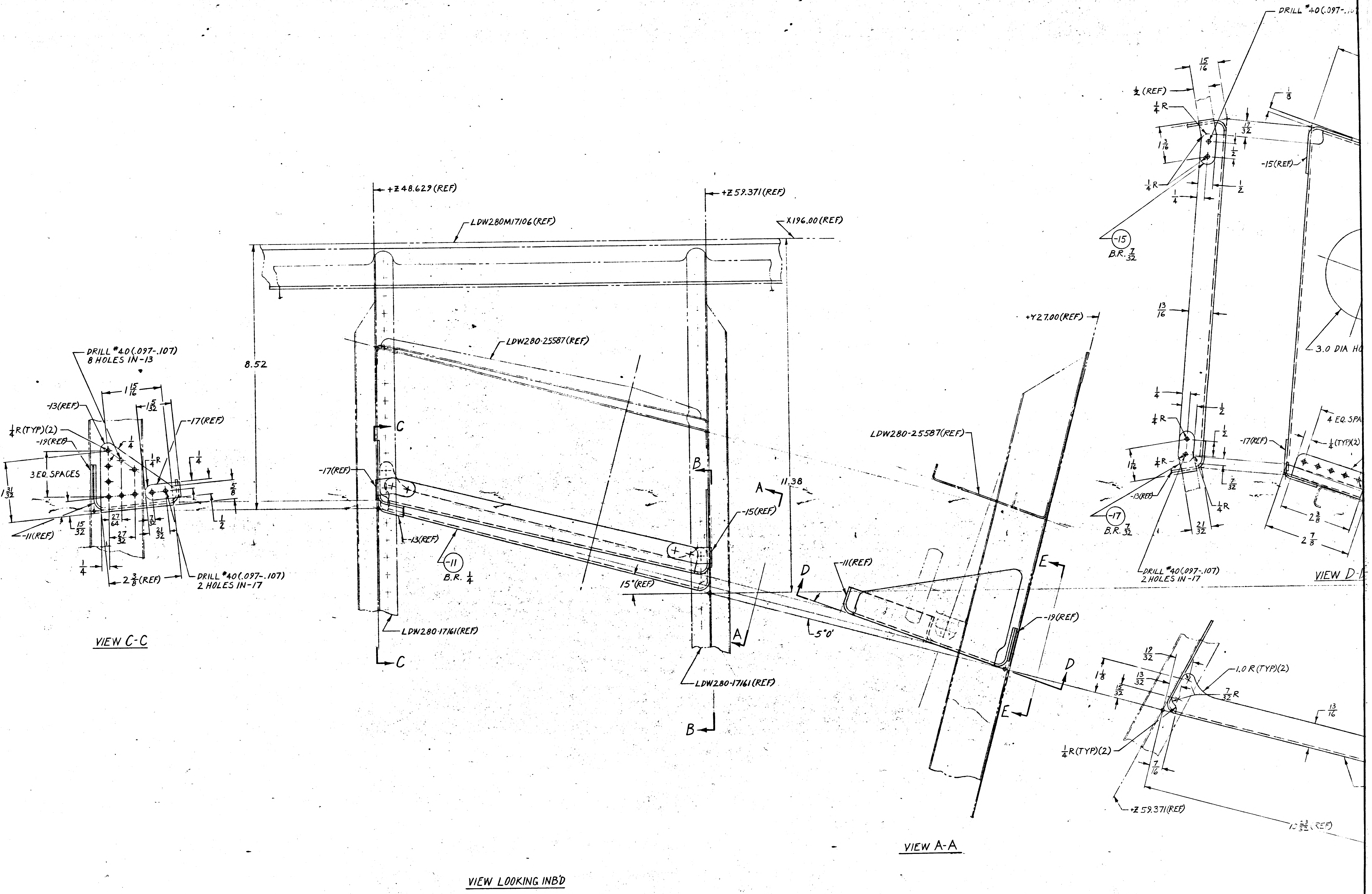
SIZE B | CODE IDENT NO. 26512 | LDW280-18076

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

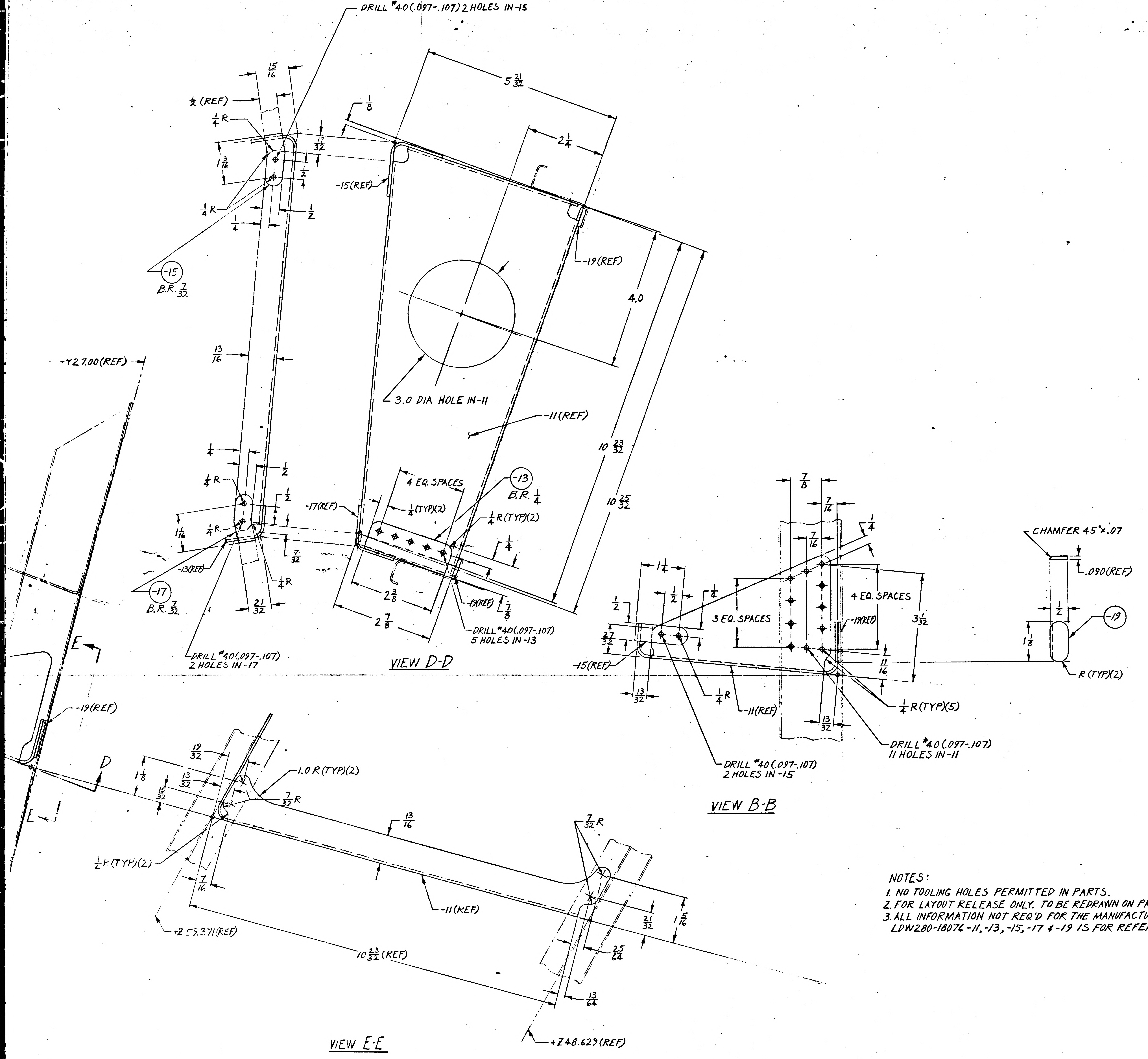
0 1

NAS 9-1100



DRILL #40(.097-.107)
8 HOLES IN-13
-13(REF)
1/4 R(TYP)(2)
-19(REF)
3 EQ. SPACES
1 31/32
1 15/16
1 5/32
-17(REF)
1/4
1/4 R
5/8
1/2
15/32
27/64
27/32
7/32
31/32
-11(REF)
1/4
2 3/8(REF)
DRILL #40(.097-.107)
2 HOLES IN-17
VIEW C-C
+Z48.629(REF)
+Z59.371(REF)
LDW280M17106(REF)
X196.00(REF)
8.52
LDW280-25587(REF)
C
-17(REF)
-13(REF)
-11
B.R. 1/4
15°(REF)
B
-15(REF)
A
11.38
LDW280-17161(REF)
LDW280-17161(REF)
C
B
VIEW LOOKING INB'D
+Y27.00(REF)
LDW280-25587(REF)
-11(REF)
D
5°0'
E
-19(REF)
D
E
VIEW A-A
DRILL #40(.097-.1
15/16
1/2(REF)
1/4 R
1 3/16
17/32
1/2
-15(REF)
1/8
1/4 R
1/4
1/2
-15
B.R. 7/32
13/16
3.0 DIA H
1/4
1/4 R
1/2
1/2
1 1/16
1/4 R
-13(REF)
-17
B.R. 7/32
7/32
1/4 R
21/32
-17(REF)
4 EQ. SPA
1/4(TYP)(2)
2 3/8
2 7/8
DRILL #40(.097-.107)
2 HOLES IN -17
VIEW D-
19/32
1 1/8
13/32
15/32
1.0 R(TYP)(2)
7/32 R
13/16
1/4 R(TYP)(2)
7/16
+Z59.371(REF)
13 23/32(REF)
VIEW E-E

01/02 NAS 9-1100


DRILL #40(.097-.107) 2 HOLES IN-15
15/16
1/2 (REF)
1/4 R
17/32
1 3/16
1/2
1/8
5 21/32
2 1/4
-15(REF)
1/4 R
1/2
1/4
-19(REF)
-15
B.R. 7/32
4.0
3.0 DIA HOLE IN-11
-11(REF)
13/16
-Y27.00(REF)
10 23/32
10 25/32
1/4
1/4 R
1/2
4 EQ. SPACES
-13
B.R. 1/4
1/2
-17(REF)
1/4 (TYP)(2)
1/4 R (TYP)(2)
1 1/16
1/4 R
1/4
-13(REF)
7/32
1/4 R
-19(REF)
7/8
-17
B.R. 7/32
21/32
2 3/8
2 7/8
DRILL #40(.097-.107) 5 HOLES IN-13
DRILL #40(.097-.107) 2 HOLES IN-17
VIEW D-D
E
-19(REF)
D
E
D
7/8
7/16
1/4
7/16
1 1/4
1/2
1/2
1/4
4 EQ. SPACES
3 EQ. SPACES
-19(REF)
3 1/32
27/32
-15(REF)
11/16
13/32
1/4 R
-11(REF)
13/32
1/4 R (TYP)(5)
DRILL #40(.097-.107) 11 HOLES IN-11
DRILL #40(.097-.107) 2 HOLES IN-15
VIEW B-B
CHAMFER 45°×.07
.090(REF)
1/2
-19
1 1/8
R (TYP)(2)
19/32
1 1/8
13/32
15/32
1.0 R (TYP)(2)
7/32 R
13/16
1/2 R (TYP)(2)
7/16
-11(REF)
7/32 R
-Z 59.371(REF)
10 33/32 (REF)
21/32
1 5/16
25/64
13/64
+Z48.629(REF)
VIEW E-E

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FOR LAYOUT RELEASE ONLY. TO BE REDRAWN ON PRODUCTION FORMAT
3. ALL INFORMATION NOT REQ'D FOR THE MANUFACTURE OF LDW280-18076-11, -13, -15, -17 & -19 IS FOR REFERENCE ONLY.

NOTES … G OPERATIONS …WISE SPECIFIED …✓ APPLY TO THIS DWG.	
RUBB STAM… PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

02/02

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-18076	
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

THIS IS AN ORIGINAL DRAWING

LDW280-18077

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25717	LTA-5 (15)	1EA
PART NO. LDW280-18077-11,-13,-15-17		GAEC SCH NO. 50-1	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1		2	3					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: E-E

LAST DASH NO. USED: -17

GRUMMAN REL INFO

PRIM NO.			
CE(001)	MP-8-22-6		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/32 ±.015 -±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY			
LAYOUT BY	MARZELLA 8-8-66	WEIGHTS	8-29
CHECKED BY			
GRP. LEADER	8/19/66		
V.D.I.	8/15		
STRUCTURES	WB 8/17	PROJ ENGR	(WR) 8-20
STRUCTURES	Hilderman 8/19	REL GROUP	Botte 8-29-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE – DESCENT STAGE
AFT RH GSE FUEL VENT
DISCONNECT SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18077

SCALE NONE | SHEET 1 OF 3

ENG 77.1 12-65

CDR = 8/19

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED NO C. [illegible] LAST REV "NO CHANGE" ADDED SH 1.10 LOFTED DRAWING WAS DIM B. A. OCCHINO 7/12/67					JAS EB	

FOR CONTINUATION OF REVISIONS SEE SHEET ________

ENG 77.3 5-65

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18077
SCALE NONE		SHEET 1.10

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18077-17	E	SHIM	AL ALLOY SHT	QQ-A-250/4	2024-T3	.056 x 5/8 x 5/8	NONE	88	
								↕ -15	E	ANGLE	↕	↕	↕	.050 x 5 x 11	↕	88	
								↕ -13	E	ANGLE	↕	↕	↕	.050 x 5 x 11	↕	88	
								LDW280-18077-11	E	ZEE	AL ALLOY SHT	QQ-A-250/4	2024-T3	.050 x 6½ x 12	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18077

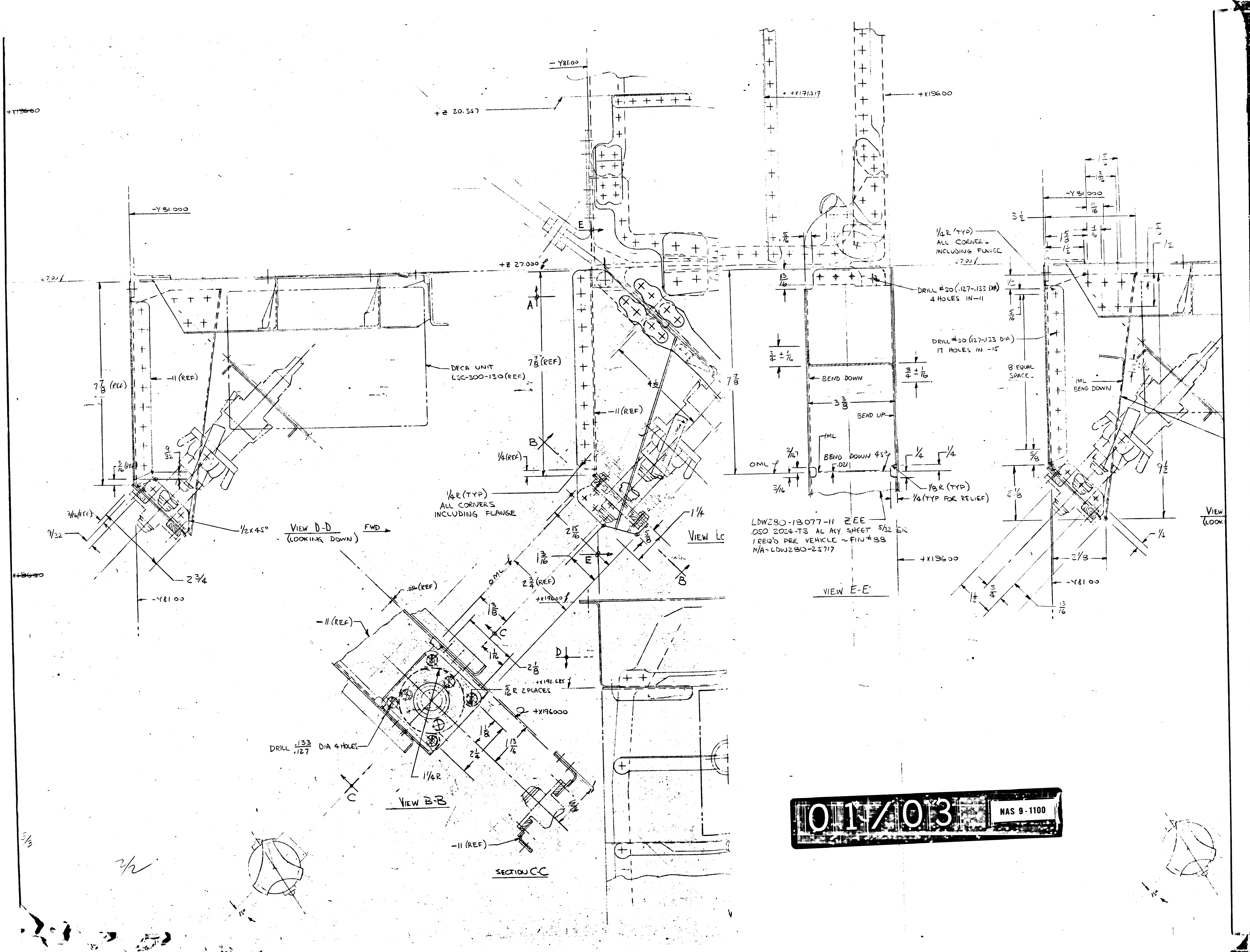
SCALE NONE

SHEET 2 of 3

ENG 77.2 7-65

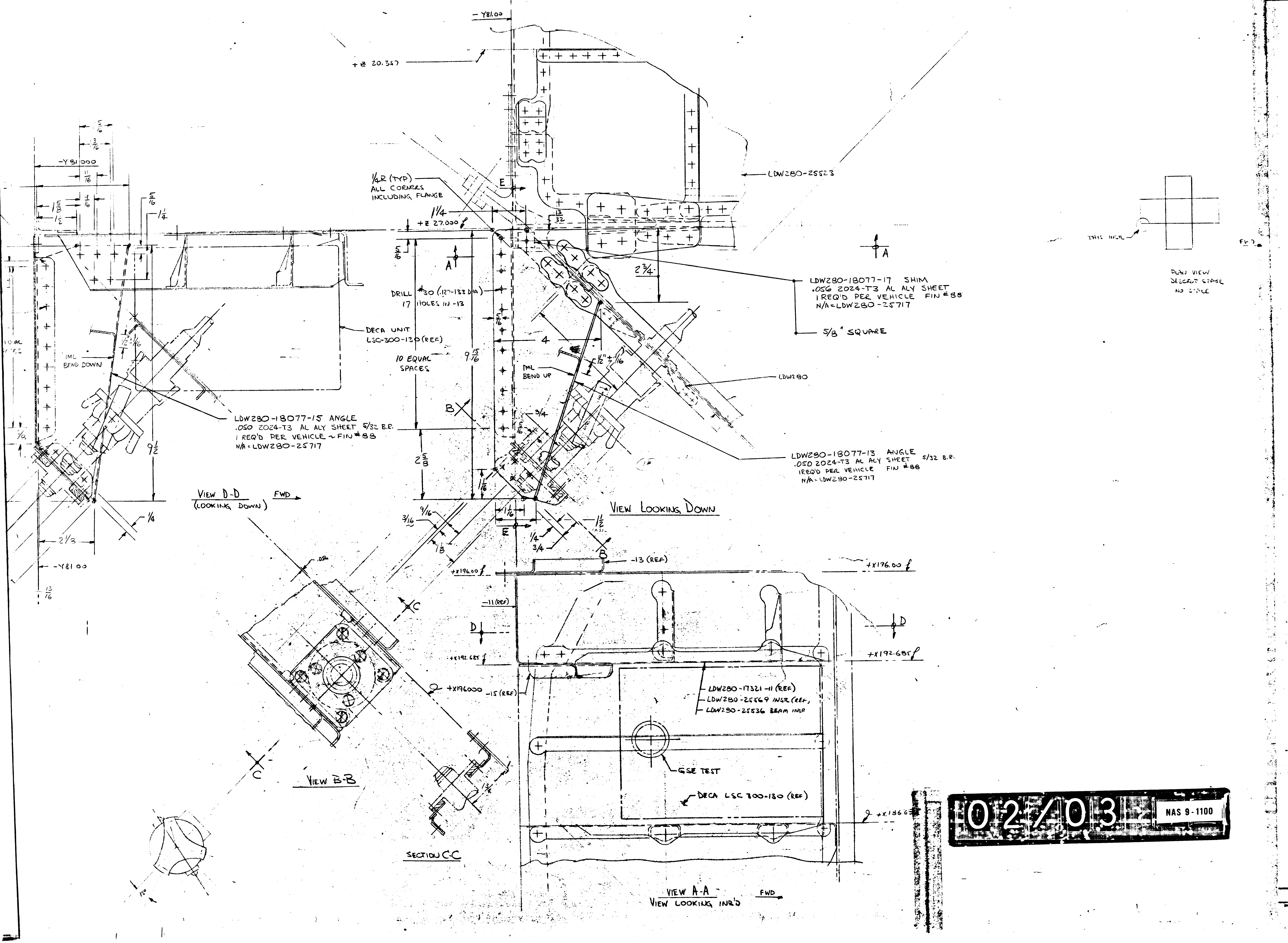
01

NAS 9-1100



+X196.00
-Y81.00
+Z 20.357
-Y81.000
E
+Z 27.000 ℓ
27.00 ℓ
7 7/8 (REF)
-11 (REF)
9/32
3/16 (REF)
3/16 (REF)
9/32
1/2 X 45°
2 3/4
-Y81.00
VIEW D-D (LOOKING DOWN)
FWD
DECA UNIT LSC-300-130 (REF)
7 7/8 (REF)
A
B
1/4 (REF)
-11 (REF)
4 1/2
1/4 R (TYP) ALL CORNERS INCLUDING FLANGE
2 15/16
1 3/16
E
2 3/4 (REF)
OML
+X196.00 ℓ
1 1/4
5/8
B
VIEW LC
.056 (REF)
-11 (REF)
1 3/8
C
1 1/16
2 1/8
D
+X192.685 ℓ
5/16 R 2 PLACES
+X196.000
DRILL .133/.127 DIA 4 HOLES
1 1/4 R
1 1/8
2 1/4
1 13/16
C
VIEW B-B
-11 (REF)
SECTION C-C
+X171.217
+X196.00
5/16
13/16
3/4 ± 1/16
BEND DOWN
3 3/8
BEND UP
3/4 ± 1/16
7 7/8
IML
OML ℓ
3/16
3/16
BEND DOWN 45°
.021
1/4
1/4
1/8 R (TYP)
1/4 (TYP FOR RELIEF)
DRILL #30 (.127-.133 DIA) 4 HOLES IN -11
LDW280-18077-11 ZEE
.050 2024-T3 AL ALY. SHEET 5/32 BR
1 REQ'D PER VEHICLE ~ FIN #38
N/A = LDW280-25717
+X196.00
VIEW E-E
1 5/8
3/16
-Y81.000
11/16
3 1/2
1 3/8
± 1/16
1 1/2
5/8
1 1/2
1/4 R (TYP) ALL CORNERS INCLUDING FLANGE
27.00 ℓ
1/2
5/16
DRILL #30 (.127-.133 DIA) 17 HOLES IN -15
8 EQUAL SPACE
IML BEND DOWN
5/8
2 1/8
9 1/2
1/4
2 1/8
-Y81.00
1 1/2
3/4
13/16
VIEW (LOOK
3/3
2/2
15°
15°

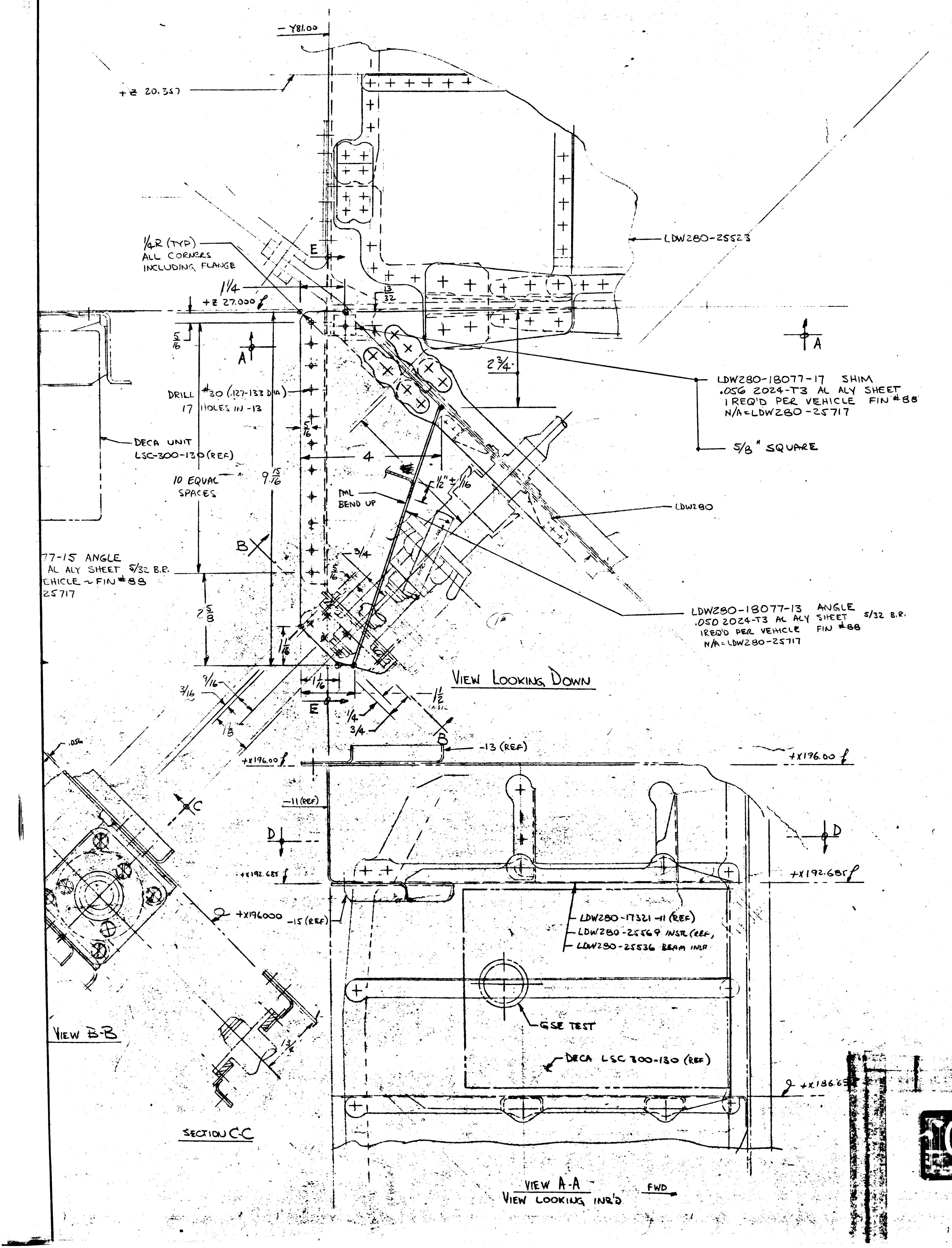
01/03 NAS 9-1100



-Y81.00
+Z 20.357
-LDW280-25523
1/4R (TYP)
ALL CORNERS
INCLUDING FLANGE
E
1 1/4
+Z 27.000
13/32
A
A
2 3/4
5/16
LDW280-18077-17 SHIM
.056 2024-T3 AL ALY SHEET
1 REQ'D PER VEHICLE FIN #88
N/A=LDW280-25717
5/8" SQUARE
DRILL #30 (.127-.133 DIA)
17 HOLES IN -13
DECA UNIT
LSC-300-130 (REF)
10 EQUAL
SPACES
9 15/16
4
IML
BEND UP
1/2" ± 1/16
LDW280
IML
BEND DOWN
1/2 ± 1/16
-Y81.000
5/16
3/16
11/16
1/16
1 5/8
1 1/2
5/16
1 1/4
B
3/4
LDW280-18077-15 ANGLE
.050 2024-T3 AL ALY SHEET 5/32 B.R.
1 REQ'D PER VEHICLE ~ FIN #88
N/A=LDW280-25717
LDW280-18077-13 ANGLE
.050 2024-T3 AL ALY SHEET 5/32 B.R.
1 REQ'D PER VEHICLE FIN #88
N/A=LDW280-25717
2 5/8
9 1/2
1 1/16
1/4
2 1/3
-Y81.00
13/16
VIEW D-D FWD
(LOOKING DOWN)
VIEW LOOKING DOWN
3/16
9/16
1/8
1 1/16
E
1/4
3/4
1 1/2
B
-13 (REF)
+X196.00
+X196.00
.056
-11 (REF)
C
D
D
+X192.685
+X192.685
+X196000
-15 (REF)
LDW280-17321-11 (REF)
LDW280-25569 INSR (REF)
LDW280-25536 BEAM INSR
GSE TEST
DECA LSC 300-130 (REF)
+X186.6
C
VIEW B-B
1 3/4
SECTION C-C
15°
VIEW A-A FWD
VIEW LOOKING INB'D
THIS INSR
FWD
PLAN VIEW
DESCENT STAGE
NO SCALE

02/03

NAS 9-1100


- Y81.00
+Z 20.357
LDW280-25523
1/4 R (TYP)
ALL CORNERS
INCLUDING FLANGE
E
1 1/4
+Z 27.000
13/32
5/16
A
DRILL #30 (.127-.133 DIA)
17 HOLES IN -13
2 3/4
DECA UNIT
LSC-300-130 (REF)
5/16
4
10 EQUAL
SPACES
9 15/16
1/2" ± 1/16
MML
BEND UP
B
3/4
5/16
77-15 ANGLE
AL ALY SHEET 5/32 B.R.
EHICLE ~ FIN #88
25717
2 5/8
1 1/16
9/16
3/16
1 1/16
E
1 1/2
1/4
3/4
1/8
B
.056
-13 (REF)
+X196.00
+X196.00
-11 (REF)
C
D
D
+X192.685
+X192.685
+X196000
-15 (REF)
1 3/4
+X186.65
LDW280-18077-17 SHIM
.056 2024-T3 AL ALY SHEET
1 REQ'D PER VEHICLE FIN #88
N/A=LDW280-25717

5/8" SQUARE

LDW280

LDW280-18077-13 ANGLE
.050 2024-T3 AL ALY SHEET 5/32 B.R.
1 REQ'D PER VEHICLE FIN #88
N/A=LDW280-25717

VIEW LOOKING DOWN

LDW280-17321-11 (REF)
LDW280-25569 INSR (REF),
LDW280-25536 BEAM INSR

GSE TEST

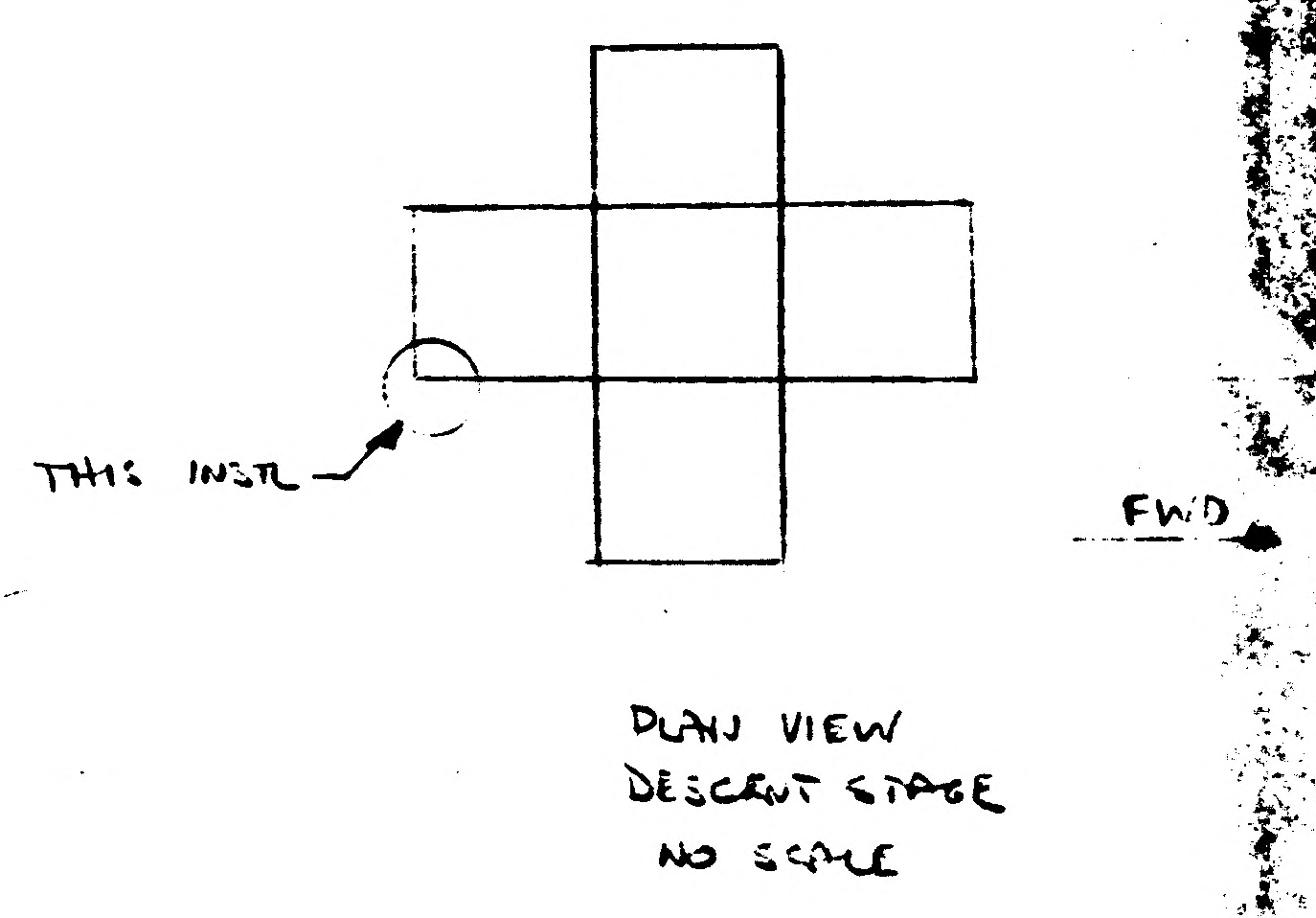
DECA LSC 300-130 (REF)

VIEW B-B

SECTION C-C

VIEW A-A
VIEW LOOKING INB'D

FWD


THIS INSTR
FWD
PLAN VIEW
DESCENT STAGE
NO SCALE

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X

ALL INFORMATION NOT REQ'D FOR MANUFACTURE OF PART IS FOR REF ONLY.

THIS IS A LAYOUT RELEASE
TO BE REDRAWN ON PRODUCTION
FORMAT

03/03

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LEM	SIZE J	CODE IDENT NO. 26512	LDW280-180 I
MODEL OR END ITEM	SCALE FULL		SHEET

THIS IS ... DWG

LDW280-18078

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25802	LTA-5(15)	1
PART NO. LDW280-18078-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25801	LTA-5 (15)	1
PART NO. LDW280-18078 -11, -13, & -15		GAEC SCH NO. 50-1	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1	2	3
REV	NC	NC	NC
SHEET			
REV			
SHEET			
REV			

LAST SECT LTR USED —
LAST DASH NO. USED -17

GRUMMAN REL INFO
PRIM NO. VE(001)
207 MP 8-20-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
1/32 ±.015 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY 8-15-66
LAYOUT BY MARZELLA
RELIAB
CHECKED BY
WEIGHTS 8-26
GRP. LEADER 8/16
V.D.I.
STRUCTURES WB 8/19
STRUCTURES 8/19
PROJ ENGR R M Carbe 8-20
REL GROUP Botti 8-30-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET - DESCENT STAGE
DUMP RELIEF - GSE VENT SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18078
SCALE NONE
SHEET 1 OF 3

ENG 77.1 12-65

CDR: 8/19

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REV NO CHANGE ADDED SH.1.10 LOFTED DWG. WAS DIM A.OCCHINO 6/27/67						

FOR CONTINUATION OF REVISIONS SEE SHEET ________

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18078	
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18078-17	E	CHANNEL	AL ALY SHT	QQ-A-250/4	2024-T3	.050 x 4 x 4	—	88	
		↕ -15	E	ANGLE	↕	↕	↕	.050 x 4 x 1 3/4	—	88	
		↕ -13	E	ANGLE	↕	↕	↕	.050 x 4 x 6 1/4	—	88	
		LDW280-18078-11	E	BRACKET	AL ALY SHT	QQ-A-250/4	2024-T3	.050 x 6 x 6 1/2	—	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18078

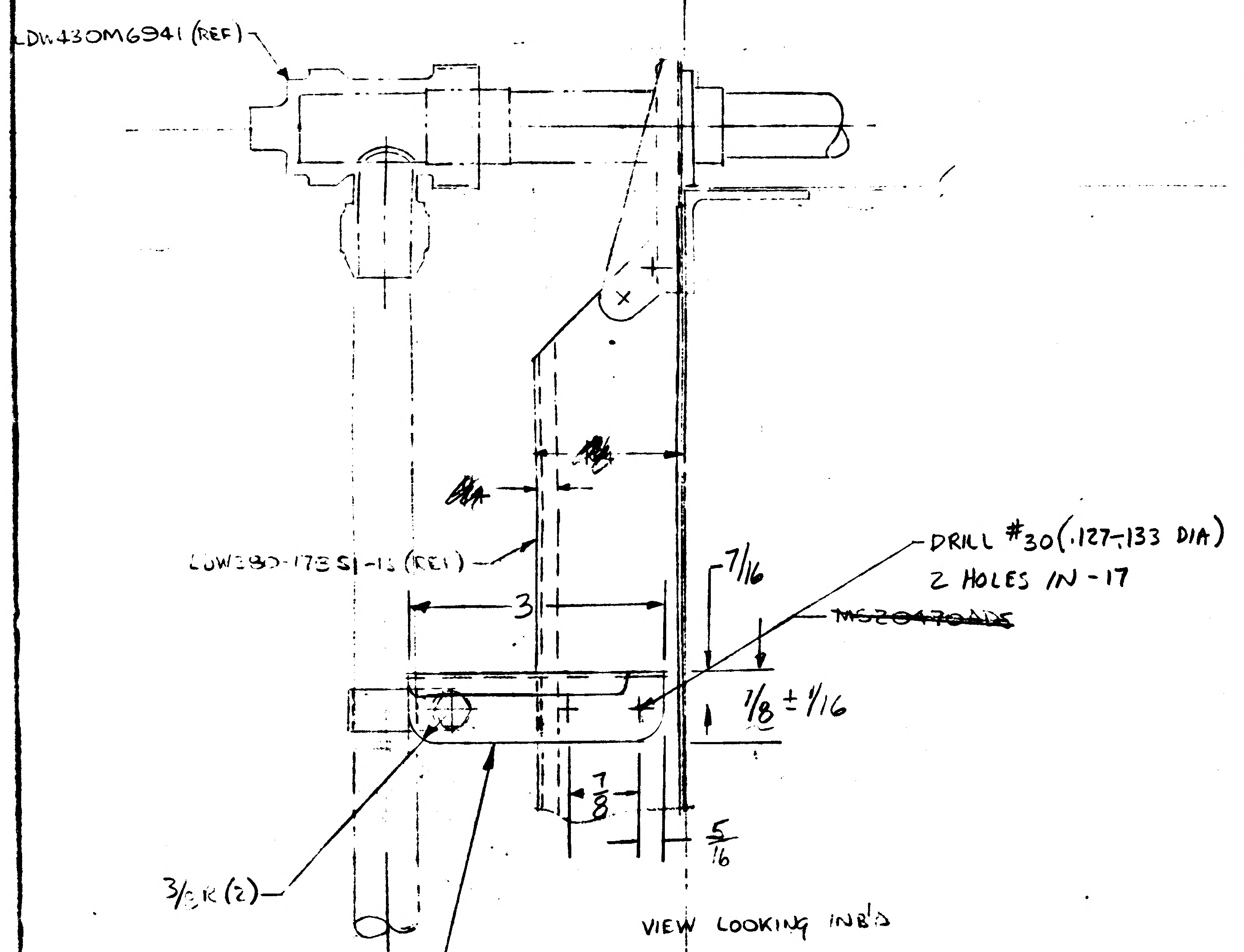
SCALE NONE

SHEET 2

ENG 77.2 7-65

01

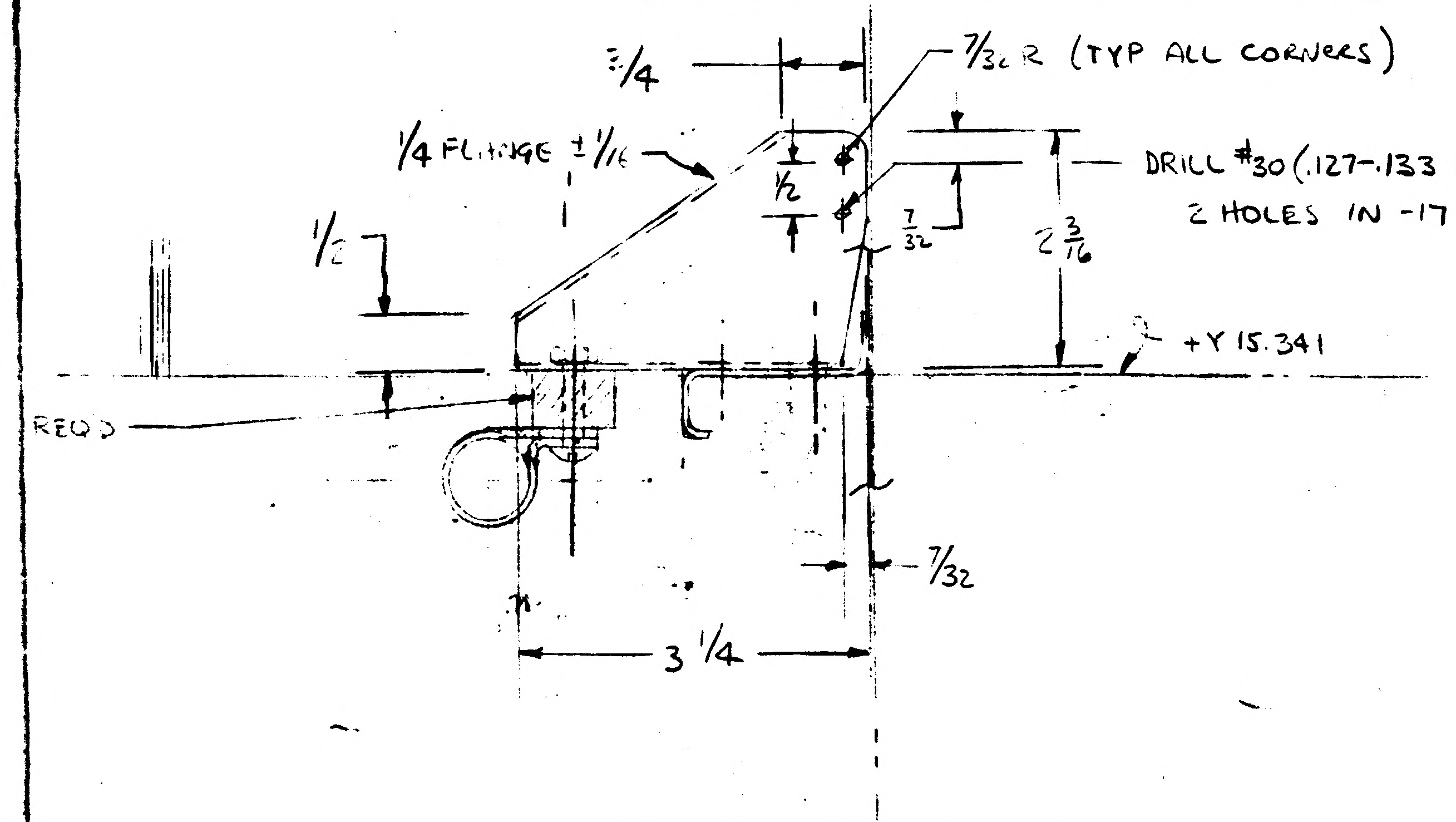
NAS 9-1100



LDW430M6941 (REF)
LDW280-17351-15 (REF)
3
7/16
MS20470AD6
DRILL #30 (.127-.133 DIA)
2 HOLES IN -17
1/8 ± 1/16
7/8
5/16
3/32R (2)

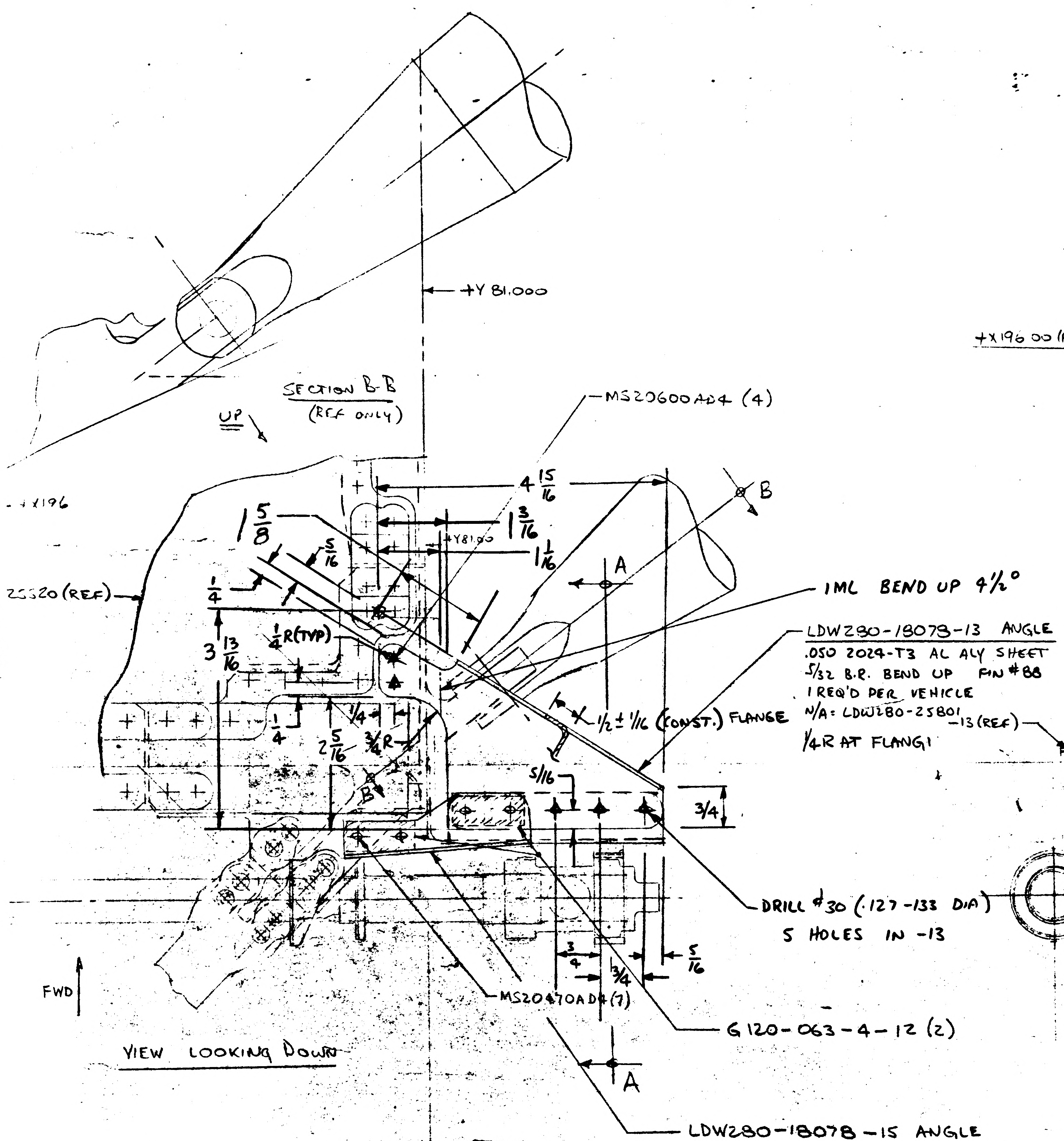
VIEW LOOKING INB'D

LDW280-18078-17 CHANNEL ~ 5/32 B.R.



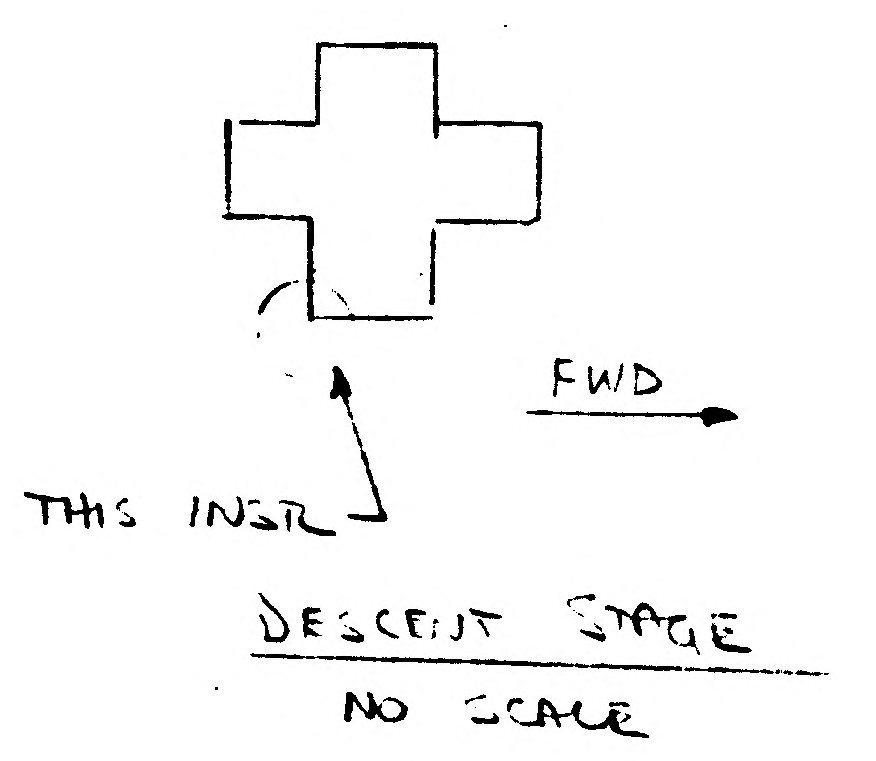
3/4
7/32 R (TYP ALL CORNERS)
1/4 FLANGE ± 1/16
1/2
DRILL #30 (.127-.133 DIA)
2 HOLES IN -17
7/32
2 3/16
1/2
+Y 15.341
REQ'D
7/32
3 1/4

VIEW LOOKING UP



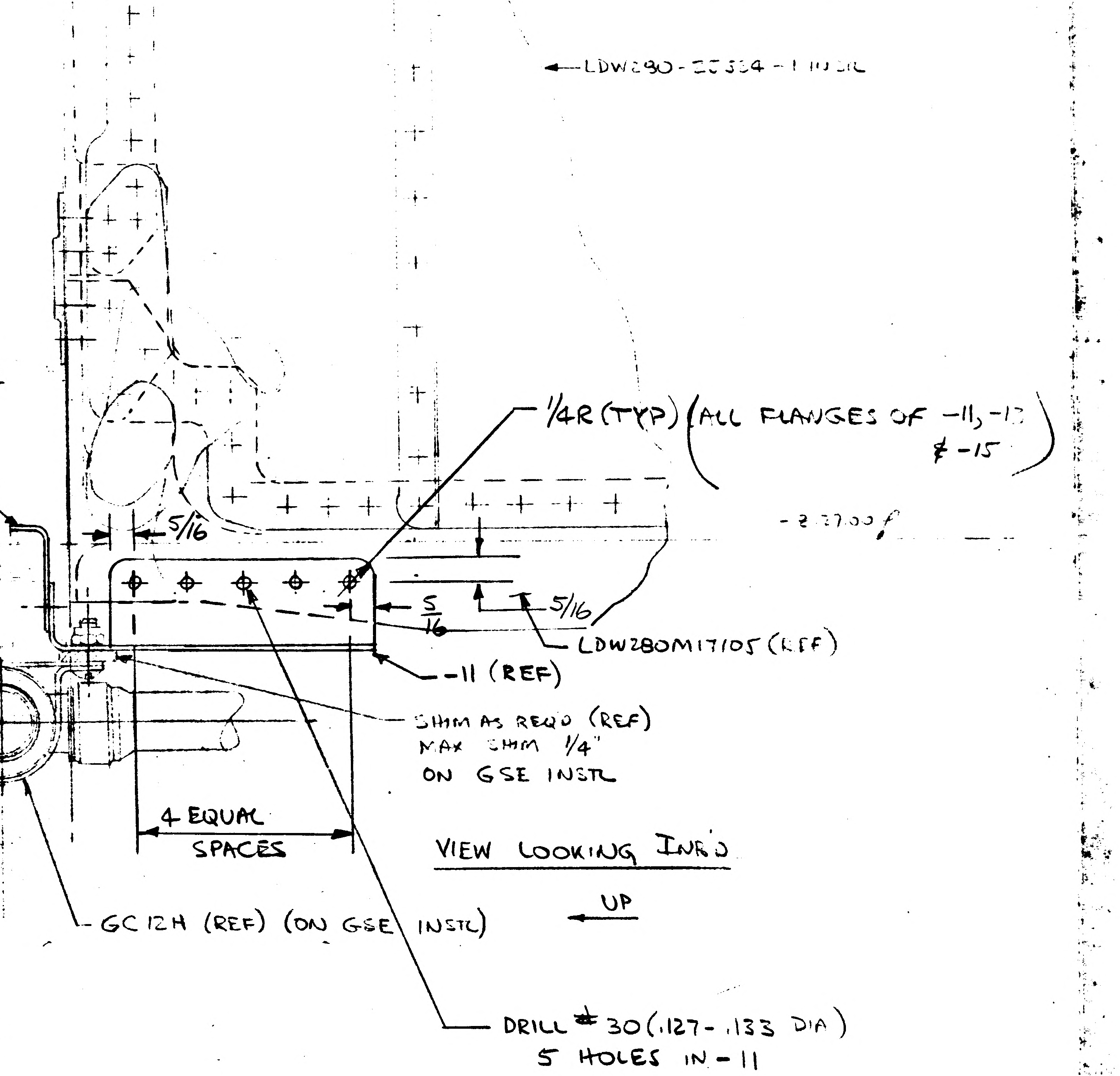
+Y 81.000
SECTION B-B
(REF ONLY)
UP
MS20600AD4 (4)
+X196
4 15/16
1 3/16
1 1/16
+Y81.00
1 5/8
5/16
B
A
1/4
25520 (REF)
IML BEND UP 4 1/2°
3 13/16
1/4 R (TYP)
LDW280-18078-13 ANGLE
.050 2024-T3 AL ALY SHEET
5/32 B.R. BEND UP FIN #88
1 REQ'D PER VEHICLE
N/A = LDW280-25801
1/2 ± 1/16 (CONST.) FLANGE
1/4 R AT FLANGE
1/4
2 5/16
3/4 R
5/16
3/4
FWD
DRILL #30 (.127-.133 DIA)
5 HOLES IN -13
3/4
3/4
5/16
MS20470AD4 (7)
G120-063-4-12 (2)
A
LDW280-18078-15 ANGLE

VIEW LOOKING DOWN



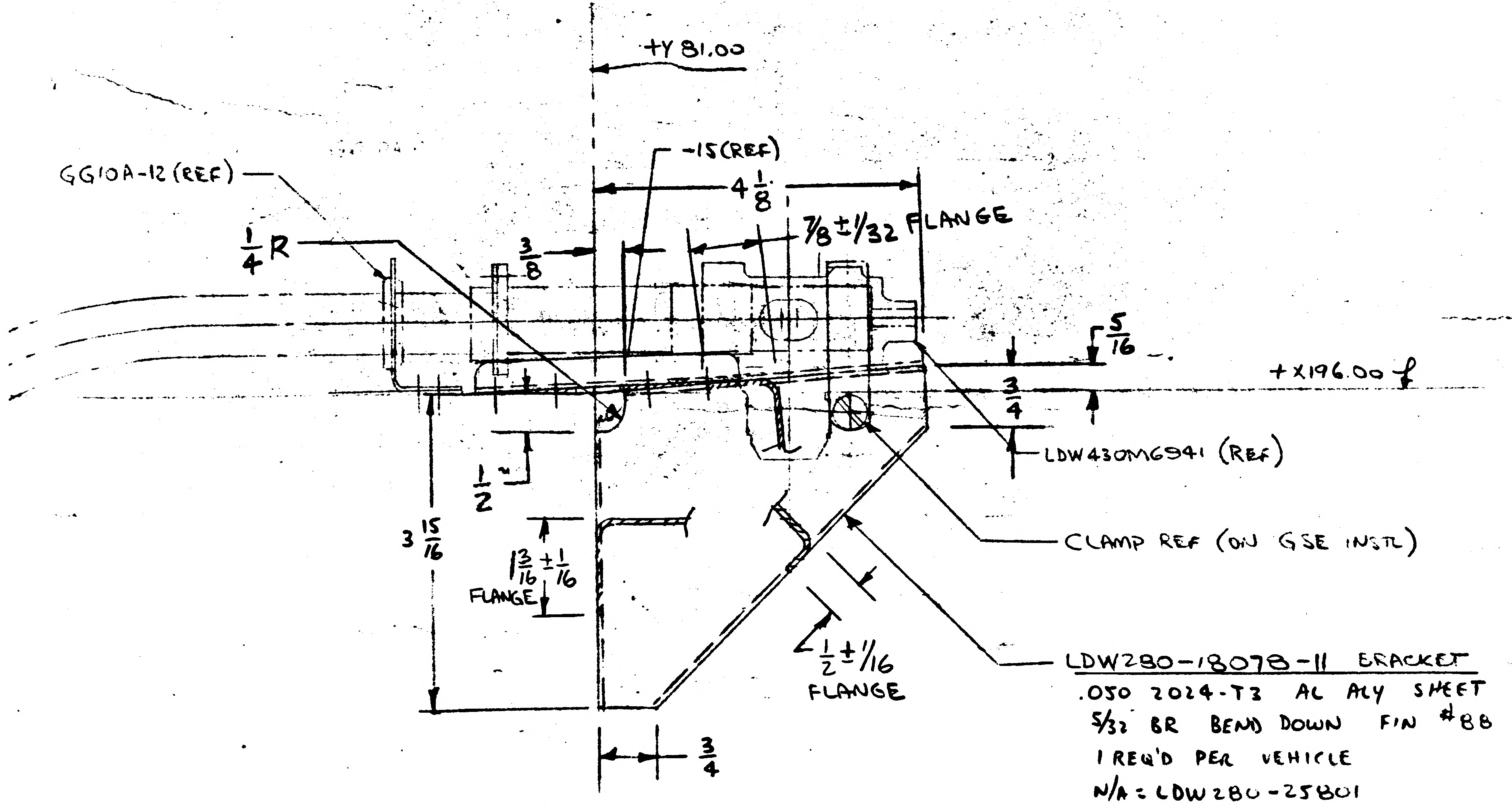
THIS INSTL
FWD

DESCENT STAGE
NO SCALE



+X196.00 (REF)
LDW280-25354-1 INSTL
1/4 R (TYP) (ALL FLANGES OF -11, -13 & -15
-13 (REF)
5/16
-2 37.00
5/16
5/16
LDW280M17105 (REF)
-11 (REF)
SHIM AS REQ'D (REF)
MAX SHIM 1/4"
ON GSE INSTL
4 EQUAL SPACES
GC12H (REF) (ON GSE INSTL)
DRILL #30 (.127-.133 DIA)
5 HOLES IN -11
UP

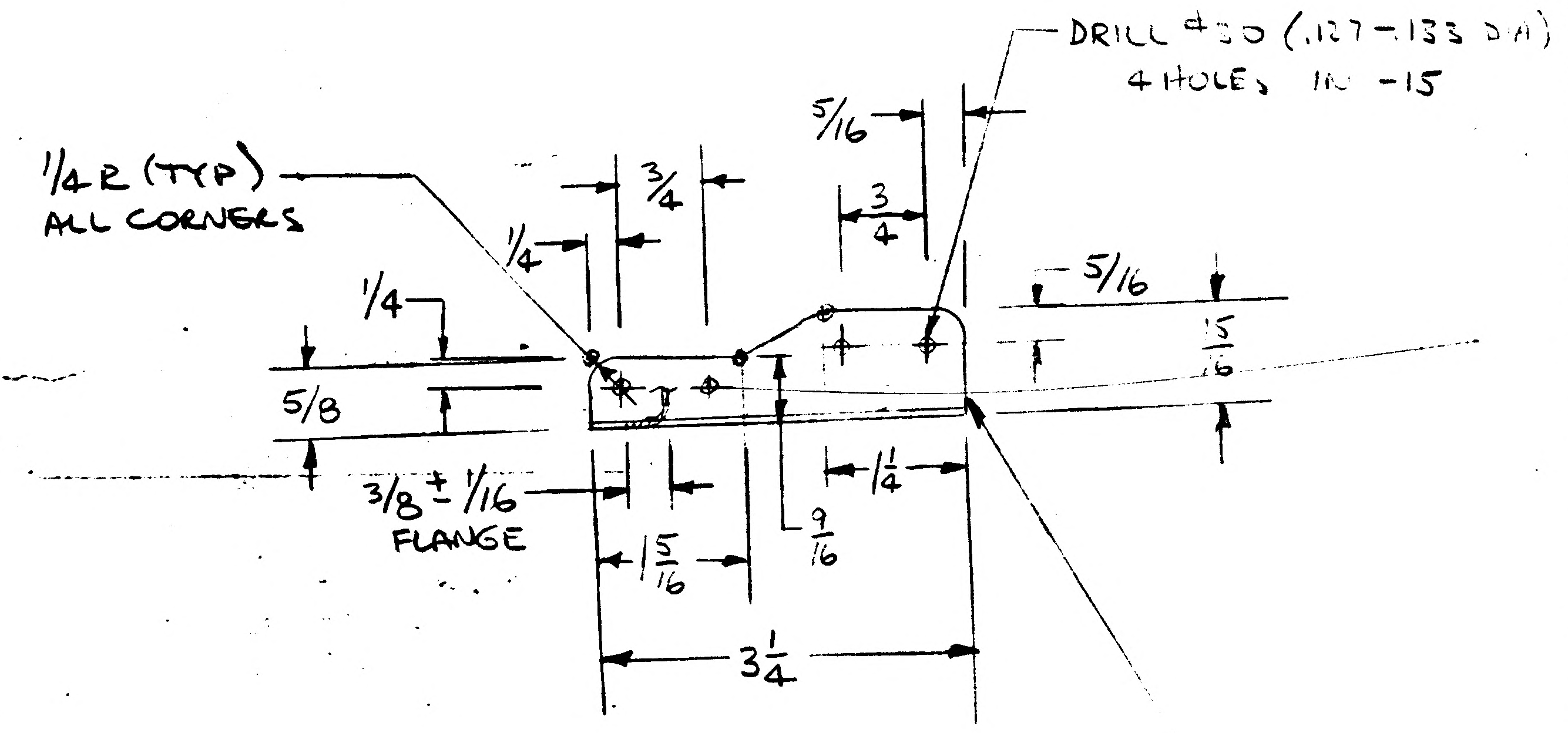
VIEW LOOKING INB'D



+Y 81.00
GG10A-12 (REF)
-15 (REF)
4 1/8
1/4 R
3/8
7/8 ± 1/32 FLANGE
5/16
+X196.00
3/4
LDW430M6941 (REF)
1/2
3 15/16
1 3/16 ± 1/16
FLANGE
CLAMP REF (ON GSE INSTL)
1/2 ± 1/16
FLANGE
3/4
UP

VIEW LOOKING FWD

LDW280-18078-11 BRACKET
.050 2024-T3 AL ALY SHEET
5/32 BR BEND DOWN FIN #88
1 REQ'D PER VEHICLE
N/A = LDW280-25801
1/4 R (TYP)



DRILL #30 (.127-.133 DIA)
4 HOLES IN -15
5/16
1/4 R (TYP)
ALL CORNERS
3/4
3/4
1/4
5/16
1/4
5/16
5/8
3/8 ± 1/16
FLANGE
1 5/16
9/16
1 1/4
3 1/4

LDW280-18078-5 ANGLE
.050 2024-T3 AL ALY SHEET
5/32 BR BEND UP FIN #88
1 REQ'D PER VEHICLE
N/A = LDW280-25801

01/02

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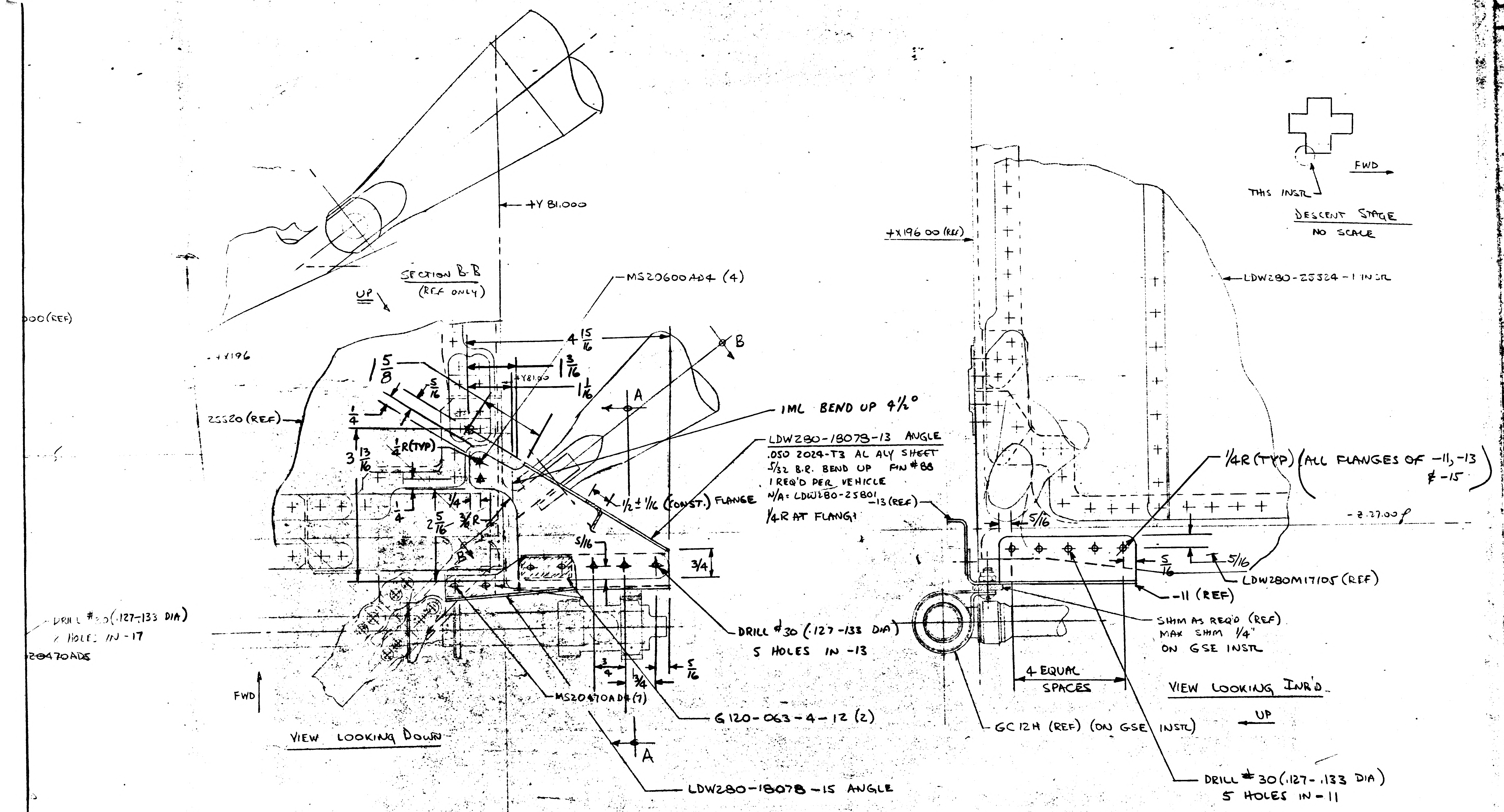
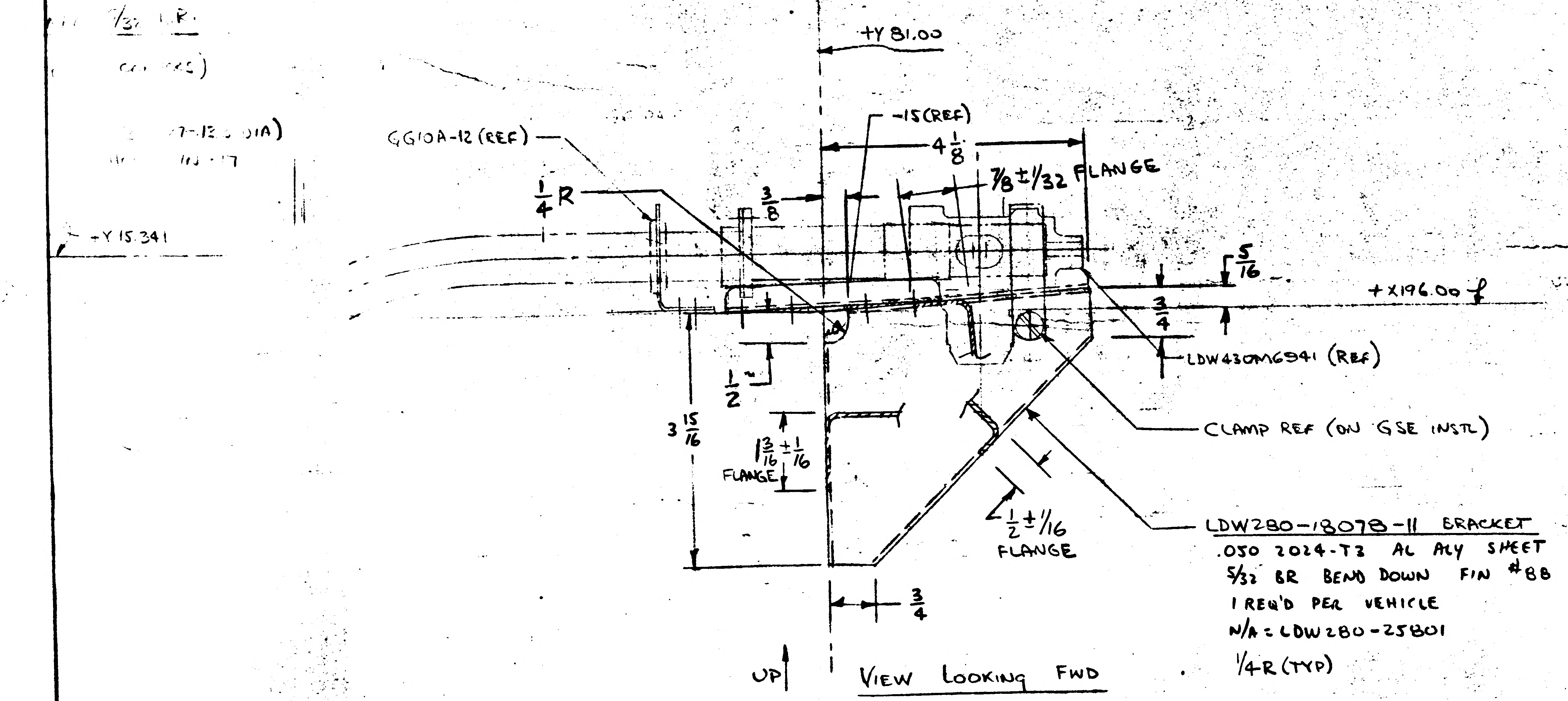
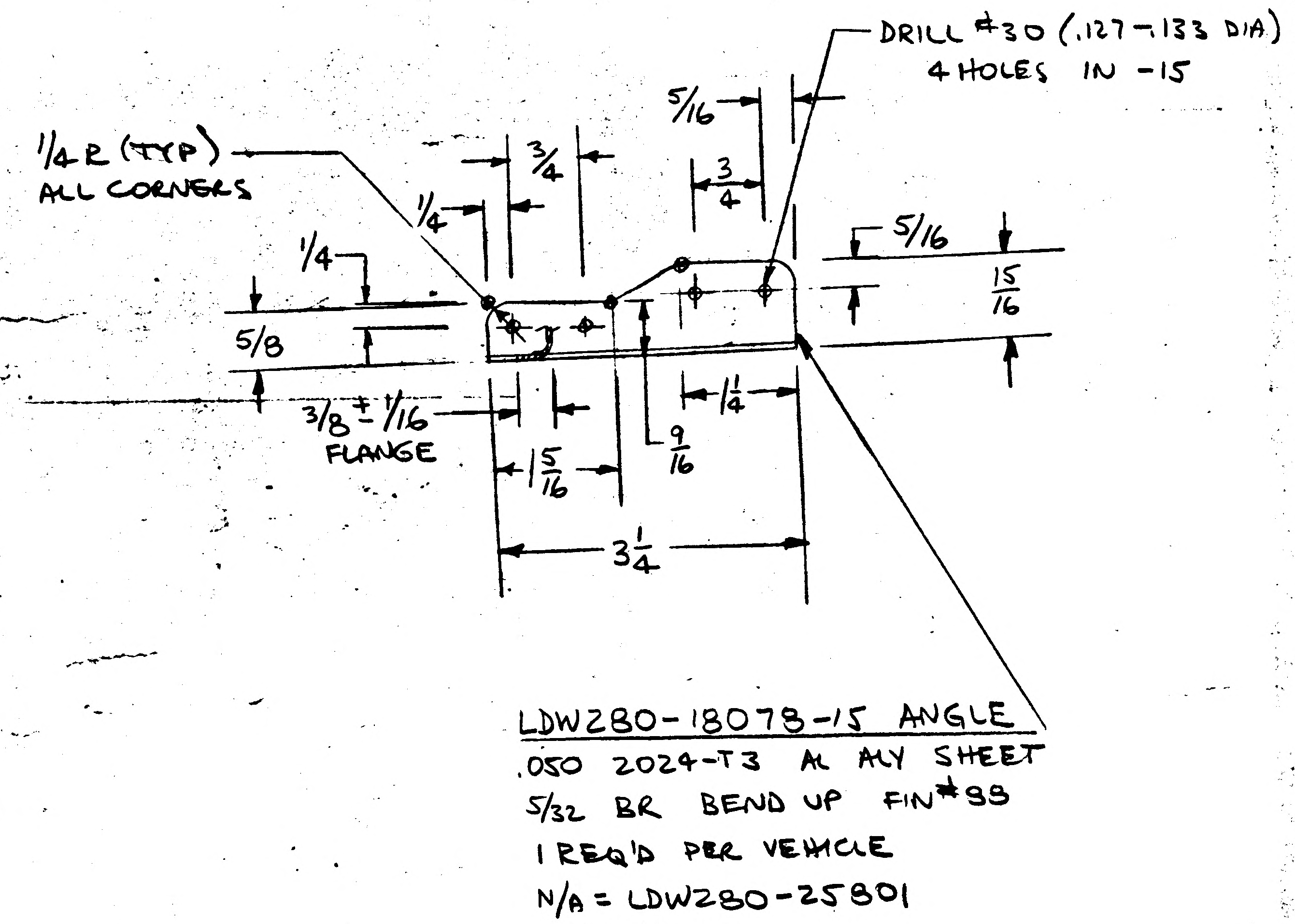

SECTION B-B
(REF ONLY)
UP
+Y 81.000
+X 196.00 (REF)
000 (REF)
+X196
25520 (REF)
MS20600AD4 (4)
4 15/16
1 5/8
1 3/16
1 1/16
5/16
+Y81.00
B
A
1/4
3 13/16
1/4 R (TYP)
1MC BEND UP 4 1/2°
LDW280-18078-13 ANGLE
.050 2024-T3 AL ALY SHEET
5/32 B.R. BEND UP FIN #88
1 REQ'D PER VEHICLE
N/A = LDW280-25801
1/2 ± 1/16 (CONST.) FLANGE
1/4 R AT FLANGE
-13 (REF)
1/4
2 5/16
3/4 R
5/16
3/4
DRILL #30 (.127-.133 DIA)
5 HOLES IN -13
DRILL #30 (.127-.133 DIA)
2 HOLES IN -17
MS20470AD5
3/4
3/4
5/16
MS20470AD4 (7)
G120-063-4-12 (2)
FWD
VIEW LOOKING DOWN
A
LDW280-18078-15 ANGLE
LDW280-25324-1 INSTL
1/4 R (TYP) (ALL FLANGES OF -11, -13 & -15)
5/16
-2.27.00
5/16
5/16
LDW280M17105 (REF)
-11 (REF)
SHIM AS REQ'D (REF)
MAX SHIM 1/4"
ON GSE INSTL
4 EQUAL SPACES
VIEW LOOKING INB'D
UP
GC12H (REF) (ON GSE INSTL)
DRILL #30 (.127-.133 DIA)
5 HOLES IN -11
THIS INSTL
FWD
DESCENT STAGE
NO SCALE


+Y 81.00
1/32 R
-27-.133 DIA)
IN -17
GG10A-12 (REF)
-Y 15.341
1/4 R
-15 (REF)
4 1/8
3/8
7/8 ± 1/32 FLANGE
5/16
+X196.00
3/4
LDW430M6941 (REF)
1/2
3 15/16
1 3/16 ± 1/16 FLANGE
CLAMP REF (ON GSE INSTL)
1/2 ± 1/16 FLANGE
LDW280-18078-11 BRACKET
.050 2024-T3 AL ALY SHEET
5/32 BR BEND DOWN FIN #88
1 REQ'D PER VEHICLE
N/A = LDW280-25801
1/4 R (TYP)
3/4
UP
VIEW LOOKING FWD


DRILL #30 (.127-.133 DIA)
4 HOLES IN -15
1/4 R (TYP)
ALL CORNERS
5/16
3/4
3/4
1/4
1/4
5/16
15/16
5/8
3/8 ± 1/16 FLANGE
1 5/16
9/16
1/4
3 1/4
LDW280-18078-15 ANGLE
.050 2024-T3 AL ALY SHEET
5/32 BR BEND UP FIN #88
1 REQ'D PER VEHICLE
N/A = LDW280-25801

ALL INFORMATION NOT REQD FOR MFG OF ~~[illegible]~~ LDW280-18078 IS FOR REF ONLY

THIS IS A LAYOUT RELEASE
TO BE REDRAWN ON PRODUCTION FORMAT

LDW280-18078

LDW280-18078

02/02

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MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

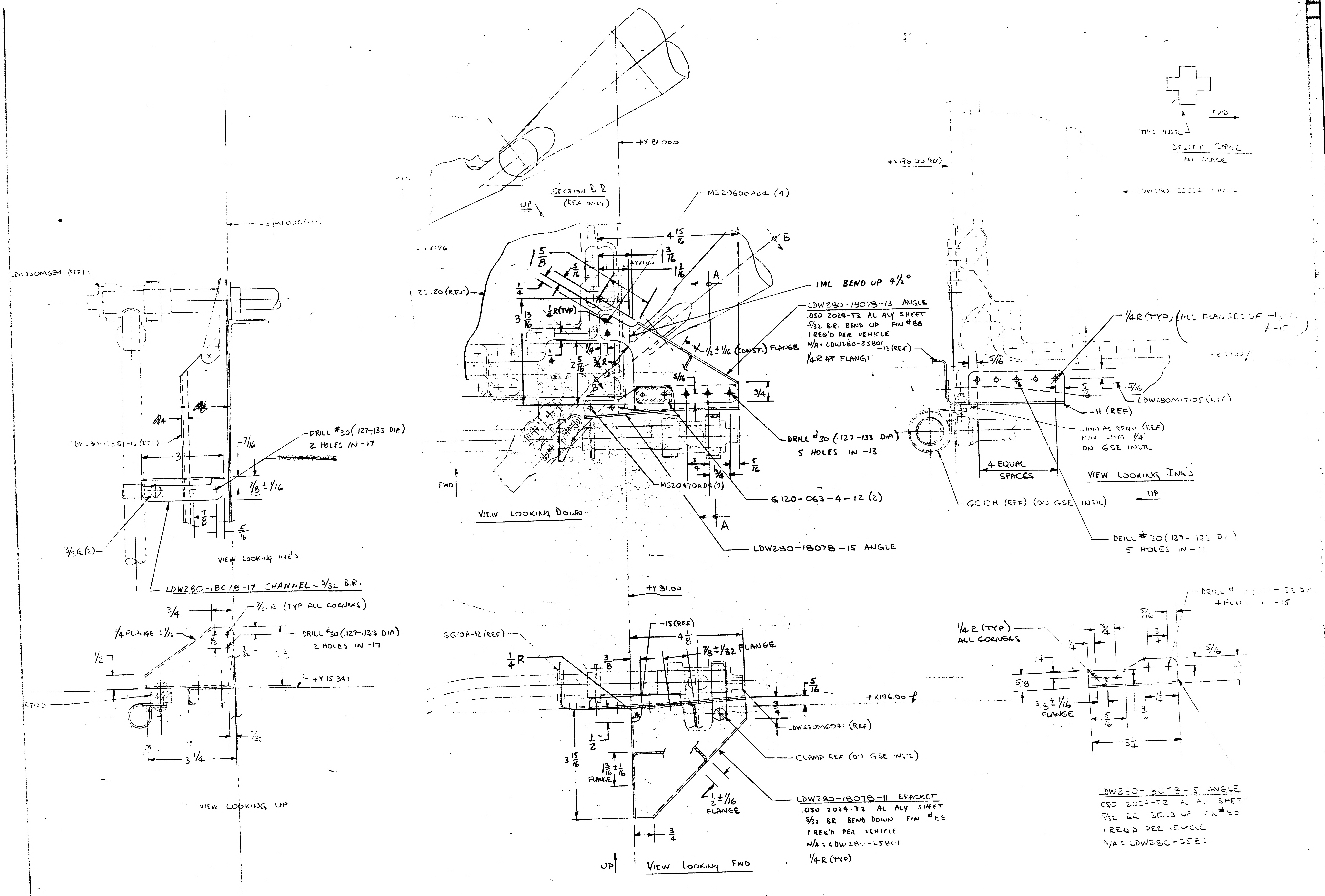
DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

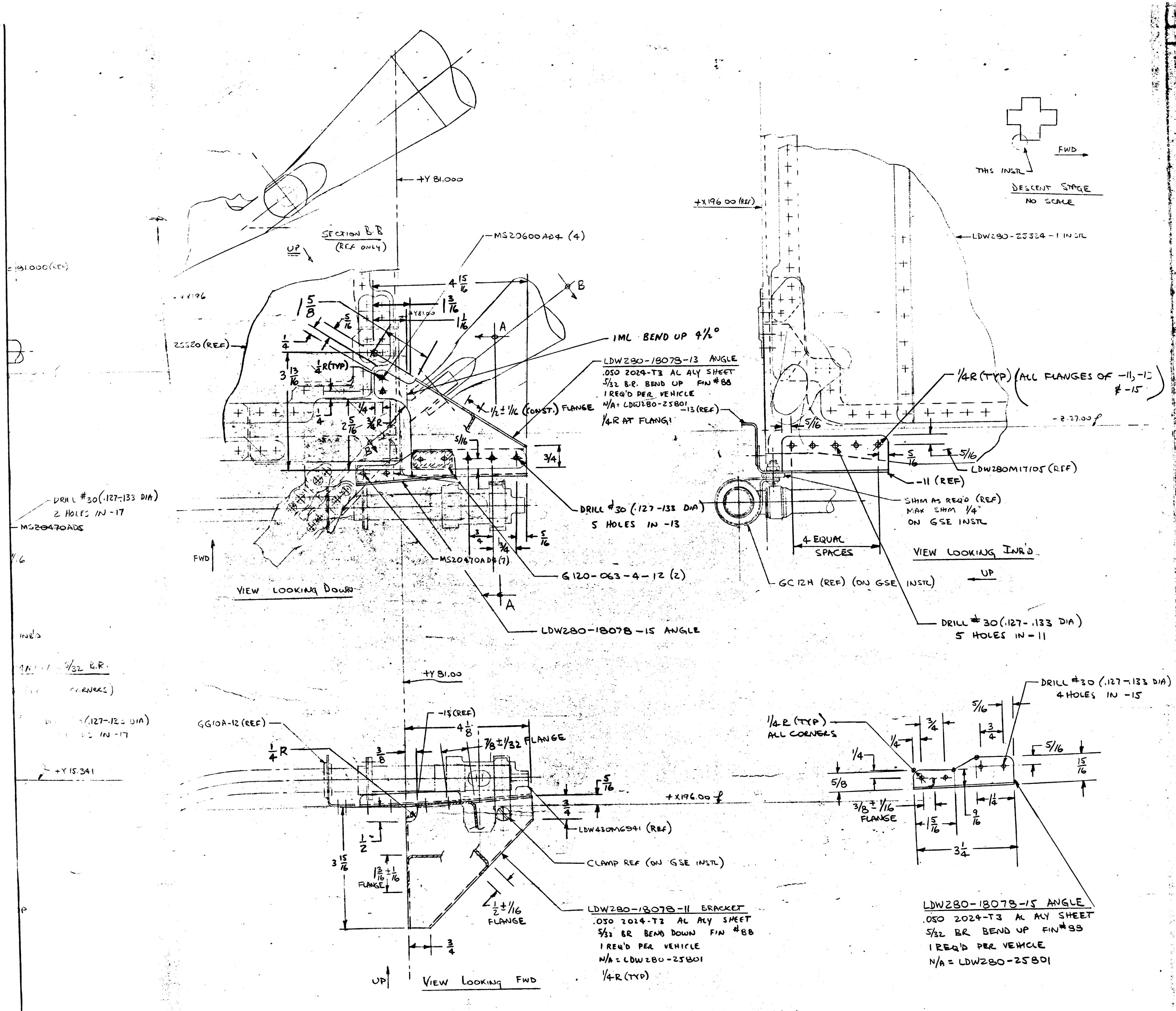
PRINT TRIM LINE

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-18078	
MODEL OR END ITEM	SCALE FULL		SHEET 3	

THIS IS AN O-GINAL


SECTION B B (REF ONLY)
UP
+Y 81.000
MS20600AD4 (4)
4 15/16
1 5/8
5/16
1 3/16
1 1/16
1/4
3 13/16
1/4 R (TYP)
25.20 (REF)
A
B
IML BEND UP 4 1/2°
LDW280-18078-13 ANGLE
.050 2024-T3 AL ALY SHEET
5/32 B.R. BEND UP FIN #88
1 REQ'D PER VEHICLE
N/A: LDW280-25801
1/2 ± 1/16 (CONST.) FLANGE
1/4 R AT FLANGE
2 5/16
3/4 R
5/16
3/4
DRILL #30 (.127-.133 DIA) 5 HOLES IN -13
MS20470AD4 (7)
G120-063-4-12 (2)
LDW280-18078-15 ANGLE
FWD
VIEW LOOKING DOWN
LDW430M694 (REF)
DRILL #30 (.127-.133 DIA) 2 HOLES IN -17
3
7/16
~~MS20470AD5~~
7/8 ± 1/16
7/8
5/16
3/32 R (2)
VIEW LOOKING INB'D
LDW280-18078-17 CHANNEL ~ 5/32 B.R.
3/4
1/4 FLANGE ± 1/16
7/32 R (TYP ALL CORNERS)
1/2
7/32
DRILL #30 (.127-.133 DIA) 2 HOLES IN -17
+Y 15.341
3 1/4
VIEW LOOKING UP
+Y 81.00
GG10A-12 (REF)
1/4 R
-15 (REF)
4 1/8
3/8
7/8 ± 1/32 FLANGE
5/16
+X 196.00
3/4
LDW430M6941 (REF)
1/2
3 15/16
1 3/16 ± 1/16 FLANGE
CLAMP REF (ON GSE INSTL)
1/2 ± 1/16 FLANGE
LDW280-18078-11 BRACKET
.050 2024-T3 AL ALY SHEET
5/32 BR BEND DOWN FIN #88
1 REQ'D PER VEHICLE
N/A: LDW280-25801
1/4 R (TYP)
UP
VIEW LOOKING FWD
FWD
THIS INSTL
DESCENT STAGE
NO SCALE
+X 196.00 (REF)
1/4 R (TYP) (ALL FLANGES OF -11, -13 & -15)
-13 (REF)
5/16
LDW280M17105 (REF)
-11 (REF)
SHIM AS REQ'D (REF) MAX SHIM 1/4 ON GSE INSTL
4 EQUAL SPACES
VIEW LOOKING INB'D
UP
GC12H (REF) (ON GSE INSTL)
DRILL #30 (.127-.133 DIA) 5 HOLES IN -11
DRILL #30 (.127-.133 DIA) 4 HOLES IN -15
1/4 R (TYP) ALL CORNERS
3/4
5/16
5/8
3 3 ± 1/16 FLANGE
1 5/16
3 1/4
LDW280-18078-15 ANGLE
.050 2024-T3 AL ALY SHEET
5/32 BR BEND UP FIN #88
1 REQ'D PER VEHICLE
N/A: LDW280-25801

01/02 NAS 9-1100


SECTION B-B
(REF ONLY)
UP
+Y 81.000
+X 191.000 (REF)
+X 196
25520 (REF)
MS20600AD4 (4)
4 15/16
1 3/16
1 1/16
+Y 81.00
1 5/8
5/16
1/4
3 13/16
1/4 R (TYP)
1/4
2 5/16
3/8 R
B
A
IML BEND UP 4 1/2°
LDW280-18078-13 ANGLE
.050 2024-T3 AL ALY SHEET
5/32 B.R. BEND UP FIN #88
1 REQ'D PER VEHICLE
N/A = LDW280-25801
1/2 ± 1/16 (CONST.) FLANGE
1/4 R AT FLANGE
-13 (REF)
5/16
3/4
DRILL #30 (.127-.133 DIA)
2 HOLES IN -17
MS20470AD5
DRILL #30 (.127-.133 DIA)
5 HOLES IN -13
3/4
3/4
5/16
FWD
MS20470AD4 (7)
G120-063-4-12 (2)
VIEW LOOKING DOWN
LDW280-18078-15 ANGLE
THIS INSTL
FWD
DESCENT STAGE
NO SCALE
+X 196.00 (REF)
LDW280-25324-1 INSTL
1/4 R (TYP) (ALL FLANGES OF -11, -13 & -15)
5/16
-Z 27.00
5/16
5/16
LDW280M17105 (REF)
-11 (REF)
SHIM AS REQ'D (REF)
MAX SHIM 1/4"
ON GSE INSTL
4 EQUAL SPACES
VIEW LOOKING INB'D
UP
GC12H (REF) (ON GSE INSTL)
DRILL #30 (.127-.133 DIA)
5 HOLES IN -11
INB'D
5/32 B.R.
CORNERS)
(.127-.133 DIA)
IN -17
+Y 15.341
+Y 81.00
-15 (REF)
GG10A-12 (REF)
1/4 R
3/8
4 1/8
7/8 ± 1/32 FLANGE
5/16
3/4
+X 196.00
LDW430M6941 (REF)
1/2
3 15/16
1 3/16 ± 1/16 FLANGE
1/2 ± 1/16 FLANGE
CLAMP REF (ON GSE INSTL)
3/4
UP
VIEW LOOKING FWD
LDW280-18078-11 BRACKET
.050 2024-T3 AL ALY SHEET
5/32 BR BEND DOWN FIN #88
1 REQ'D PER VEHICLE
N/A = LDW280-25801
1/4 R (TYP)
DRILL #30 (.127-.133 DIA)
4 HOLES IN -15
1/4 R (TYP)
ALL CORNERS
5/16
3/4
3/4
1/4
1/4
5/16
15/16
5/8
3/8 ± 1/16 FLANGE
1 5/16
9/16
1/4
3 1/4
LDW280-18078-15 ANGLE
.050 2024-T3 AL ALY SHEET
5/32 BR BEND UP FIN #88
1 REQ'D PER VEHICLE
N/A = LDW280-25801

ALL INFORMATION NOT REQ'D FOR MFG OF ~~[illegible]~~ LDW280-18078 IS FOR REF ONLY

THIS IS A LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

LDW280-18078

LDW280-18078

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-18078	
MODEL OR END ITEM	SCALE FULL			SHEET 3

THIS S A[illegible] DWG [illegible]

02/02

NAS 9-1100

LM	LDW280-28752	LEM-15(45)	2EA

PART NO. LDW280-18082-19-20-21 CONT.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28752	LM-15(45)	4
		LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
		LM-10(40)	4
		LM-9(39)	4
		LM-8(38)	4
		LM-7(37)	4
		LM-6(36)	4
		LM-5(35)	4
		LM-4(34)	4
		LM-3(33)	4
		LM-2(32)	4
		LM-1(31)	4
LM	LDW280-28752	LTA-8(18)	4
PART NO. LDW280-18082-23		GAEC SCH NO.	

LDW280-18082 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28752	LM-14(44)	2EA
		LM-13(43)	2EA
		LM-12(42)	2EA
		LM-11(41)	2EA
		LM-10(40)	2EA
		LM-9(39)	2EA
		LM-8(38)	2EA
		LM-7(37)	2EA
		LM-6(36)	2EA
		LM-5(35)	2EA
		LM-4(34)	2EA
		LM-3(33)	2EA
		LM-2(32)	2EA
		LM-1(31)	2EA
LM	LDW280-28752	LTA-8(18)	2EA
PART NO. LDW280-18082-19-20 & -21		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28752	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	1
		LM-2(32)	1
		LM-1(31)	1
LM	LDW280-28752	LTA-8(18)	1
PART NO. LDW280-18082-15		GAEC SCH NO. 52	

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED B-B

LAST DASH NO. USED -23

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) MP-14A-6/26/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/16 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	OCONNELL		
LAYOUT BY	CLARK	THERMAL	RATAILETT 9-28
CHECKED BY			
GR LEADER	STRAKOSCH 8-3-66		
VEH DES INT	PAULSRUD 8-4		
STRUCTURE	HAUCK 8-5	PROJ ENGR	CARBEE
STRUCTURE	HILDERMAN 8-5	REL GROUP	BOTTI 10-4-66
WEIGHTS	ROBESCH 8-17		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL
DESCENT STAGE-Q III-THERMAL SHIELD-
HELIUM TANK PLUME IMPINGEMENT SHIELD SIDE

SIZE B

CODE IDENT NO. 26512

LDW280-18082 A

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SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-18082 NO CHG 10-4-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
								RETRACED NO	CHG LAST REV NO CHG ADDED SH. 1.10 J. INGOGLIA [illegible]-67						
A	1	1.00 2.00 3.00						EO A1	ADDED -19,-20,-21 & -23, REVISED OUTLINE OF -15, REMOVED -11, -12, -13 & -17	LTA-8, LM-1 THRU LM-6		-11,-12, -13 & -17	J. INGOGLIA 5-19-67		
	2	1.00						LEO 280-320	FOR LDW280-18082-15-19-20-21 & -23 ADDED LM-7 THRU LM-15	LM-7 THRU LM-15	NOT	REQD			
	3	1.00 3.00							IN FIELD & B/M REMOVED LDW280-17950-43(2) & -1 ASSY, ON -21 REMOVED MAKE FROM -1 ASSY	LTA-8, LM-1 THRU LM-15		-1			
	4	2.00 3.00							④ IN B/M REMOVED MAKE FROM LDW280-17950-43 ON -15-19-20 & -23 ADDED SEE NOTE 2 ON -15, -19, -20, -21, & -23, IN FLD ADDED NOTE 2		NOT	REQD			

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18082	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

Ⓐ

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18082-23	E	FOIL	NICKEL FOIL			SEE NOTE 2			
		-21	E	FOIL							
		-20	E	FOIL							
		-19	E	FOIL							
		LDW280-18082-15	E	FOIL	NICKEL FOIL			SEE NOTE 2			

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

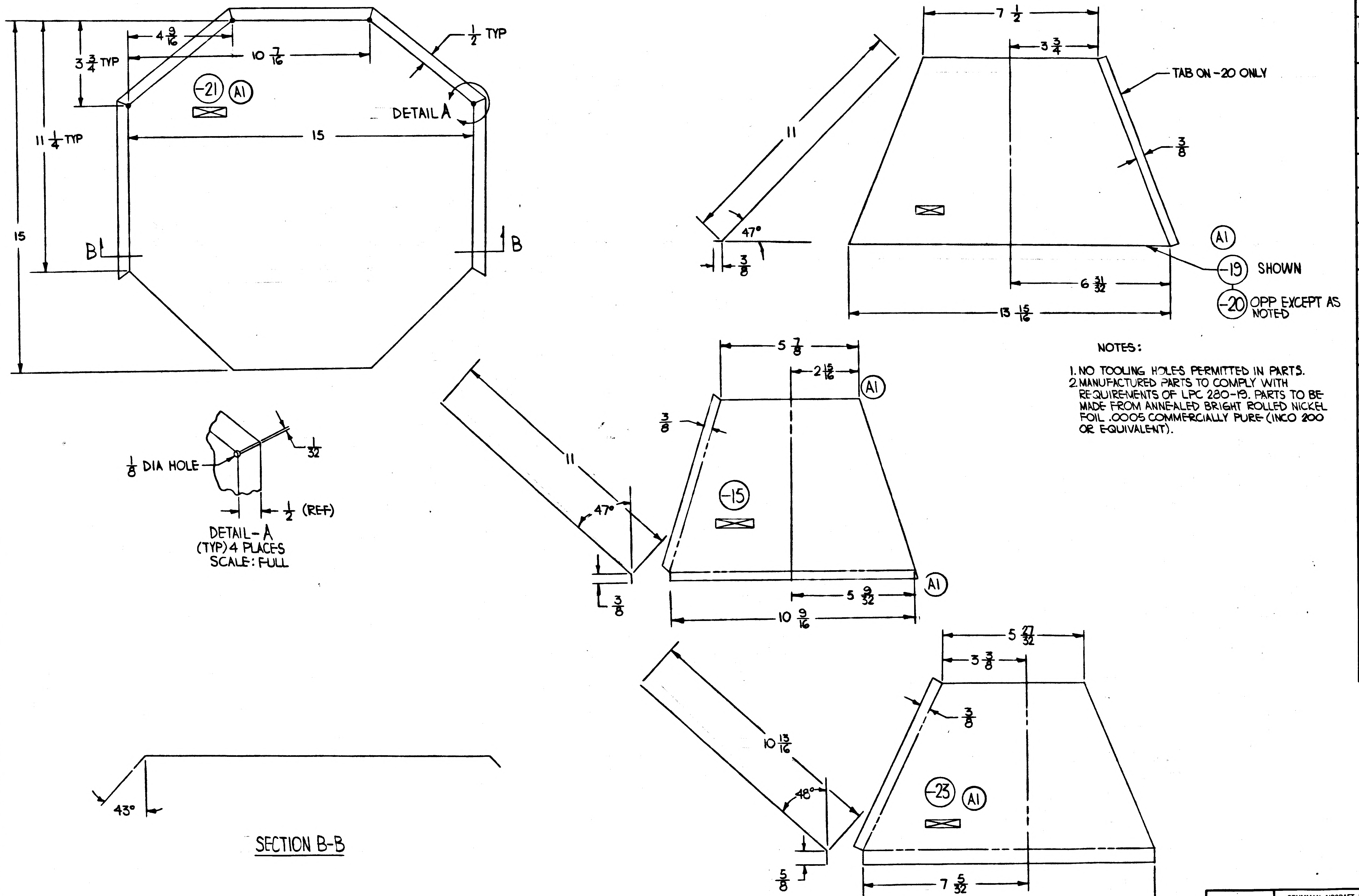
SIZE	CODE IDENT NO.		
B	26512	LDW280-18082	A
SCALE NONE			SHEET 2.00

Ⓐ

ENG 77.2 7-65

01

NAS 9-1100


4 3/16
1/2 TYP
3 3/4 TYP
10 7/16
-21 A1
DETAIL A
11 1/4 TYP
15
15
B
B
1/8 DIA HOLE
1/32
1/2 (REF)
DETAIL-A
(TYP) 4 PLACES
SCALE: FULL
43°
SECTION B-B
11
47°
3/8
7 1/2
3 3/4
TAB ON -20 ONLY
3/8
A1
-19 SHOWN
-20 OPP EXCEPT AS NOTED
6 31/32
13 15/16
5 7/8
2 13/16
A1
3/8
11
47°
-15
3/8
5 9/32
A1
10 9/16
5 27/32
3 3/8
3/8
10 13/16
48°
-25 A1
5/8
7 5/32
12 5/8

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. MANUFACTURED PARTS TO COMPLY WITH REQUIRENENTS OF LPC 280-19. PARTS TO BE MADE FROM ANNEALED BRIGHT ROLLED NICKEL FOIL .0005 COMMERCIALLY PURE (INCO 200 OR EQUIVALENT).

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IB	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18082	A
	SCALE 1/2 & NOTED		SHEET 3	

01

NAS 9-1100

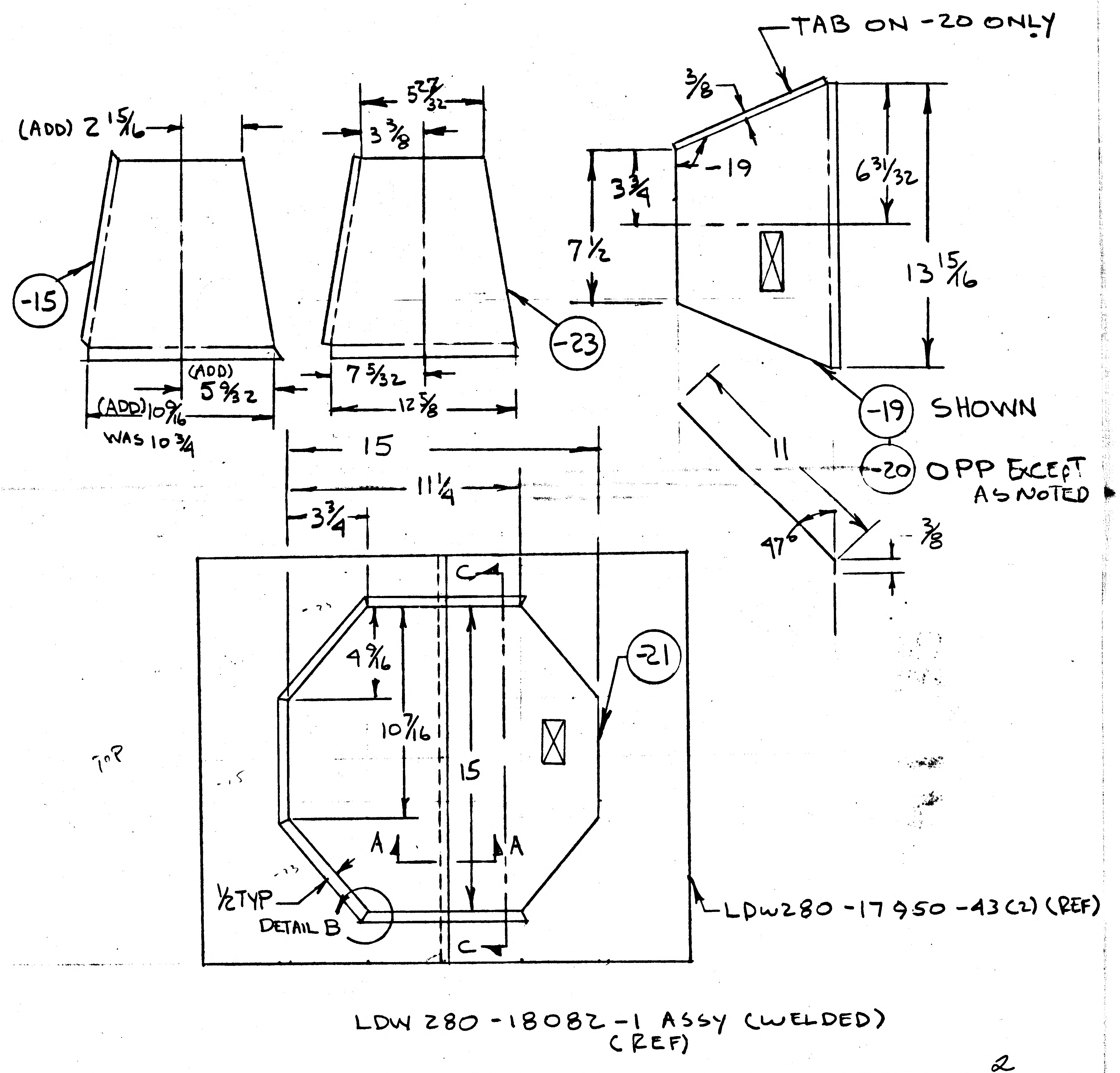
01

ENG 32.2 REV 3-65 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18082		EO NO. A1	
CONTROL INFO NO. LDW 280A-0392			

IN B/M, F/D & M/B CREATE -23 IDENTICAL TO -13 EXCEPT AS SHOWN BELOW
N/A LDW 280-28752 LTA-8(18) LEM-1(31) THRU LEM-6(36) 4REQ/MOD.
CREATE -19 & -20 AS SHOWN BELOW. MAKE FROM LDW280-17950
-43 N/A LDW 280-28752 LTA-8(18) LEM-1(31) THRU LEM-6(36), 2EACH
REQ/MOD.
CREATE -21 AS SHOWN BELOW. MAKE FROM LDW280-18082-1. N/A
LDW 280-28752 LTA-8(18), LEM-1(31) THRU LEM-6(36) 2REQ/MOD.
REMOVE -11, -12, -13 & -17 FOIL ASSY.
IN F/D REVISE OUTLINE OF -15 AS SHOWN BELOW.
ROTATE VIEW C-C 90° CCW.


TAB ON -20 ONLY
(ADD) 2 15/16
5 27/32
3 3/8
3/8
-19
3 3/4
6 31/32
7 1/2
13 15/16
-15
-23
(ADD) 5 9/32
(ADD) 10 9/16
WAS 10 3/4
7 5/32
12 3/8
15
11 1/4
3 3/4
-19 SHOWN
11
-20 OPP EXCEPT AS NOTED
47°
3/8
4 9/16
10 9/16
15
-21
A
A
C
C
1/2 TYP
DETAIL B
LDW280-17950-43(2) (REF)

LDW 280-18082-1 ASSY (WELDED)
(REF)

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: ADDITIONAL THERMAL REQMT

DESCRIPTION OF EO: ADDED -19, -20, -21 & -23
REVISED OUTLINE OF -15;
REMOVED -11, -12, -13 & -17. ROTATED VIEW C-C 90° CCW

GAEC EO RELEASE: VE 9-21

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8(18) LEM-1(31)	
		THRU LEM-6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY									
✓ REVISE DWG	RECORD EO	-15 REWORK	-11, -12 -13, -17 SCRAP	DATE 9/14/66	9/14/66 YDI	LBG 9/26/66 WTS	RELIAB. GROUP	GROUP LEADER	WJH 9/15/66 STRESS GROUP	LIAISON ENGRG	RMC 9-20 PROJ ENGRG	9/19/66 GOVT	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FOIL - DESCENT STAGE Q III THERMAL SHIELD He TANK P.I. SHIELD-SIDE	LDW280-18082	A1

ISSUED BY C. RUSSO / J. STRAKOSCH SECTION YDI GROUP NO. 335 PL 35 EAF

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18082	EO NO.	B1
CONTROL INFO NO.	LDW280B0861		

ENG 22.2 REV 3-65

ADD -25 FOIL AS SHOWN, MATERIAL NICKEL FOIL, STOCK SIZE SEE NOTE 2., N/A LDW280-28752, EFFECTIVITY LM-3(33), 1 REQ'D/MODULE.

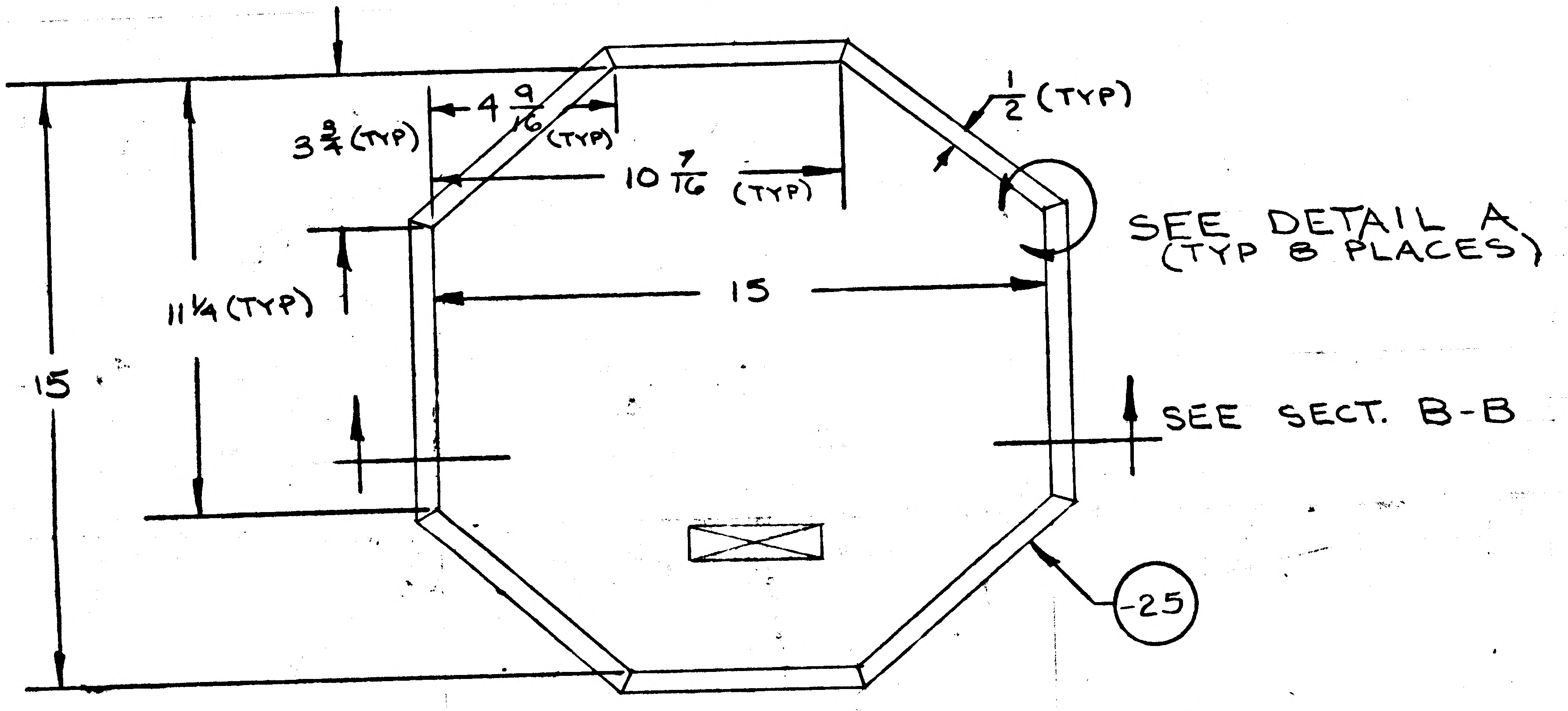
IN MOD/BLOCK FOR -15, -19, -20, -21 & -23 REMOVE EFFECTIVITY LM-4(34) THRU LM-15 (45).

FOR -21 N/A LDW280-28752, EFF. LM-3(33), 1 REQ'D/MODULE WAS 2 REQ'D/MODULE.

FOR -15 N/A LDW280-28752, EFF. LM-3(33), 3 REQ'D/MODULE WAS 1 REQ'D/MODULE.

FOR -19 N/A LDW280-28752, EFF. LM-3(33), 1 REQ'D/MODULE WAS 2 REQ'D/MODULE.

FOR -20 N/A LDW280-28752, EFF. LM-3(33), 3 REQ'D/MODULE WAS 2 REQ'D/MODULE.



FOR -23 N/A LDW280-28752, EFF. LM-3(33), 6 REQ'D/MODULE WAS 4 REQ'D/MODULE.

DESCRIPTION OF E.O. (CONTINUED)

FOR -21 N/A LDW280-28752, EFF. LM-3 1 REQ'D/MOD WAS 2 REQ'D/MOD.
-15 N/A LDW280-28752, EFF. LM-3 3 REQ'D/MOD WAS 1 REQ'D/MOD.
-19 N/A LDW280-28752, EFF. LM-3 1 REQ'D/MOD WAS 2 REQ'D/MOD.
-20 N/A LDW280-28752, EFF. LM-3 3 REQ'D/MOD WAS 2 REQ'D/MOD.
-23 N/A LDW280-28752, EFF. LM-3 6 REQ'D/MOD WAS 4 REQ'D/MOD.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2360

5

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: ADDED -25. FOR -15, -19, -20, -21 & -23 REMOVED EFF. LM-4 THRU LM-15. CONTINUED IN FIELD OF E.O.

GAEC EO RELEASE: C 1/3/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	JHS			PSF	WH		JaP	Botte
DATE	12/29/67			12/27/67	12/29/67		12/29/67	1-3-68
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: FOIL-D/S-Q III-THERMAL SH. He TANK PLUME IMP. SHIELD SIDE

DRAWING NO.: LDW280-18082 EO NO.: B1

6 JAN '68
ISSUED BY J. BACKOFEN X1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18083 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28754	LM-1 (31)	1

PART NO. LDW280-18083-21

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28756	LM-1(31)	1

PART NO. LDW280-18083-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28805	LM-2(32)	1 EA
↕	LDW280-28805	LM-1(31)	1 EA
	LDW280-28772	LM-2(32)	1 EA
LM	LDW280-28772	LM-1(31)	1 EA

PART NO. LDW280-18083-15&-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28756	LTA-8(18)	1

PART NO. LDW280-18083-11 GAEC SCH NO. 52

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-21	PRIM NO. 207	JK(601) ME-3A-12/11/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100 | LINE ITEM #1 | DOCUMENTATION TYPE II

DRAWN BY	E.HERCZEG 7-18-66		
LAYOUT BY	J. BACKOFEN 7-18	THERMO	8/4
CHECKED BY			
GR LEADER	7/19/66		
VEHDES INT	7/19		
STRUCTURES	7/24	PROJ ENGR	
STRUCTURES	7/20	REL GROUP	Bott. 8-24-66
WEIGHTS	7-23		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE QUAD IV PLUME
IMPINGEMENT-SKIN UPPER

SIZE	CODE IDENT NO.		
B	26512	LDW280-18083	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00,1.10,2.00 & 3.00						EO A1	ADDED -13, ADDED SHEET 1.10	LM-1 (31)	NOT	REQD	TWEEDY 12-4-68		
	2	1.00, 2.00 & 3.00						EO A2	ADDED -15 & -17 & NOTE 2, ON -11 & -13 ADDED STOCK SIZE, REMOVED "MAKE FROM LDW280-17970-27"	LM-1 TO LM-6 LTA-8	NOT	REQD			
	3	2.00 & 3.00						EO A3	ADDED NOTE 3 FOR -13	LM-1 (31)	✓				
	4	1.00						LEO280-320	FOR -15 & -17 ADDED LM-7 THRU LM-15 EFFECTIVITY	LM-7 THRU LM-15	NOT	REQD			
	5	2.00						EO A5	REF EOA-2, ON -15 & -17, STOCK THICKNESS ".00125" WAS ".0005"	LM-1 THRU LM-15 & LTA-8	NOT	REQD			
	6	1.00, 2.00 & 3.00					✓	EO A6	REMOVED -11 & -13, ADDED -19 & 21	LM-1 (31)		✓			
	7	1.00		P Ⓡ				LEO 280-912 LCD 2360	RESTRICTED -15 & -17, WAS USED ON LM-1(31) THRU LM-15 (45)	LM-3 THRU LM-15		✓	12/10/68		

CHG APPROVED	LTR	GROUP LDR										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18083	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

C.L.	QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C								LDW280-18083-21	E	PATCH	SEE NOTE 2			.00125x1¾x3½	NOTE 3	NONE	
C								-19	E	ZEE	SEE NOTE 2			.00125x4x6	NONE	NONE	
C								-17	E	ZEE	SEE NOTE 2			.00125x1x2	NONE	NONE	
C								-15	E	ZEE	SEE NOTE 2			.00125x2½x2½	NONE	NONE	
C								LDW280-18083-11	E	ZEE	SEE NOTE 2			.0005x4x6	NONE	NONE	

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

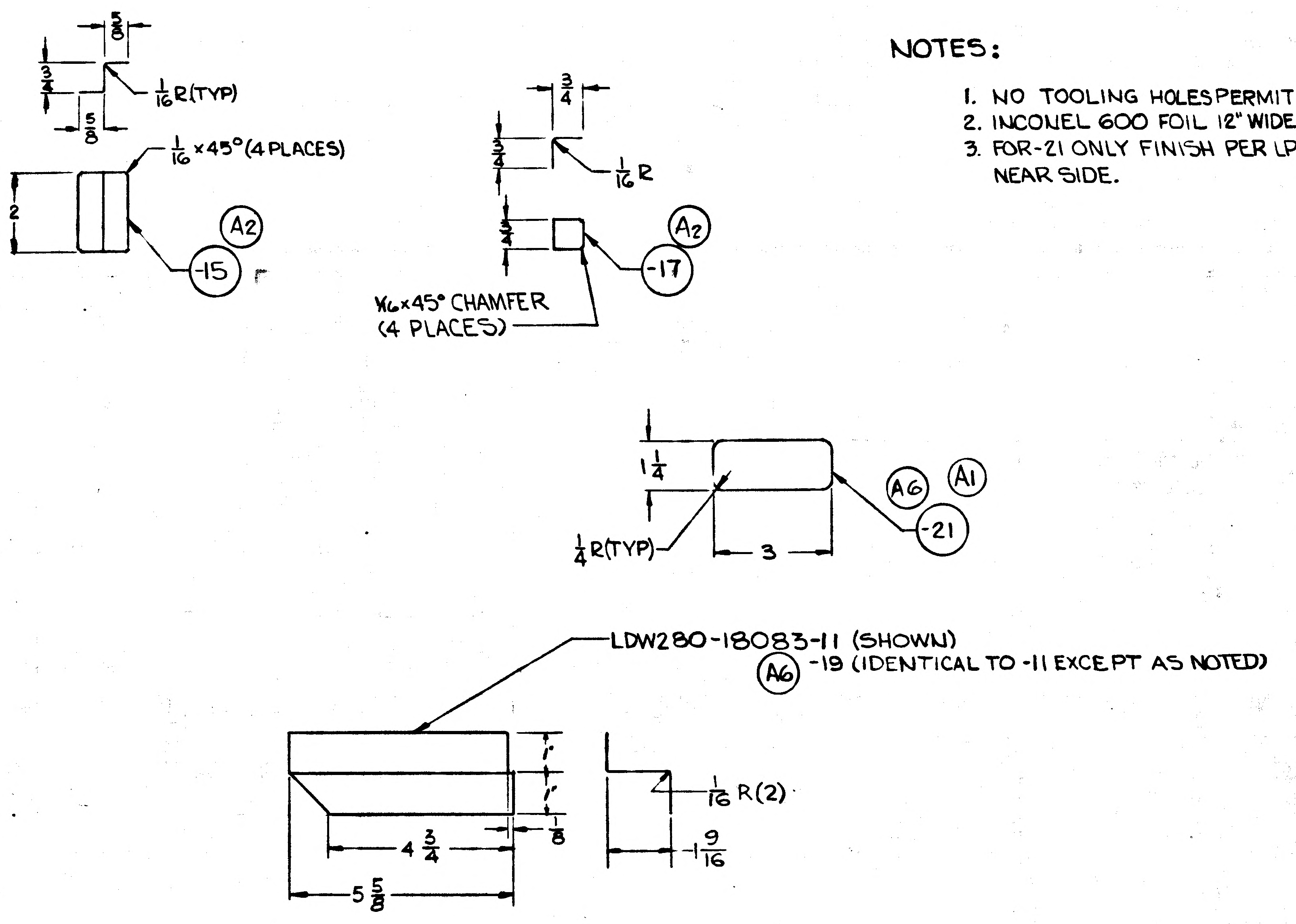
SIZE B | CODE IDENT NO. 26512 | LDW280-18083 | A

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


$\frac{5}{8}$
$\frac{3}{4}$
$\frac{1}{16}$R(TYP)
$\frac{5}{8}$
$\frac{1}{16}$×45°(4 PLACES)
2
A2
-15
$\frac{3}{4}$
$\frac{3}{4}$
$\frac{1}{16}$R
$\frac{3}{4}$
A2
-17
1/16×45° CHAMFER
(4 PLACES)
$1\frac{1}{4}$
$\frac{1}{4}$R(TYP)
3
A6
A1
-21
LDW280-18083-11 (SHOWN)
A6 -19 (IDENTICAL TO -11 EXCEPT AS NOTED)
1"
1"
$\frac{1}{8}$
$4\frac{3}{4}$
$5\frac{5}{8}$
$\frac{1}{16}$R(2)
$1\frac{9}{16}$

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. INCONEL 600 FOIL 12" WIDE PER AMS5540E.
3. FOR-21 ONLY FINISH PER LPC 280-5, PAINT NEAR SIDE.

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	C	26512	LDW280-18083	A
	SCALE HALF		SHEET 3.00	

ENG 73-2 6-64

01

NAS 9-1100

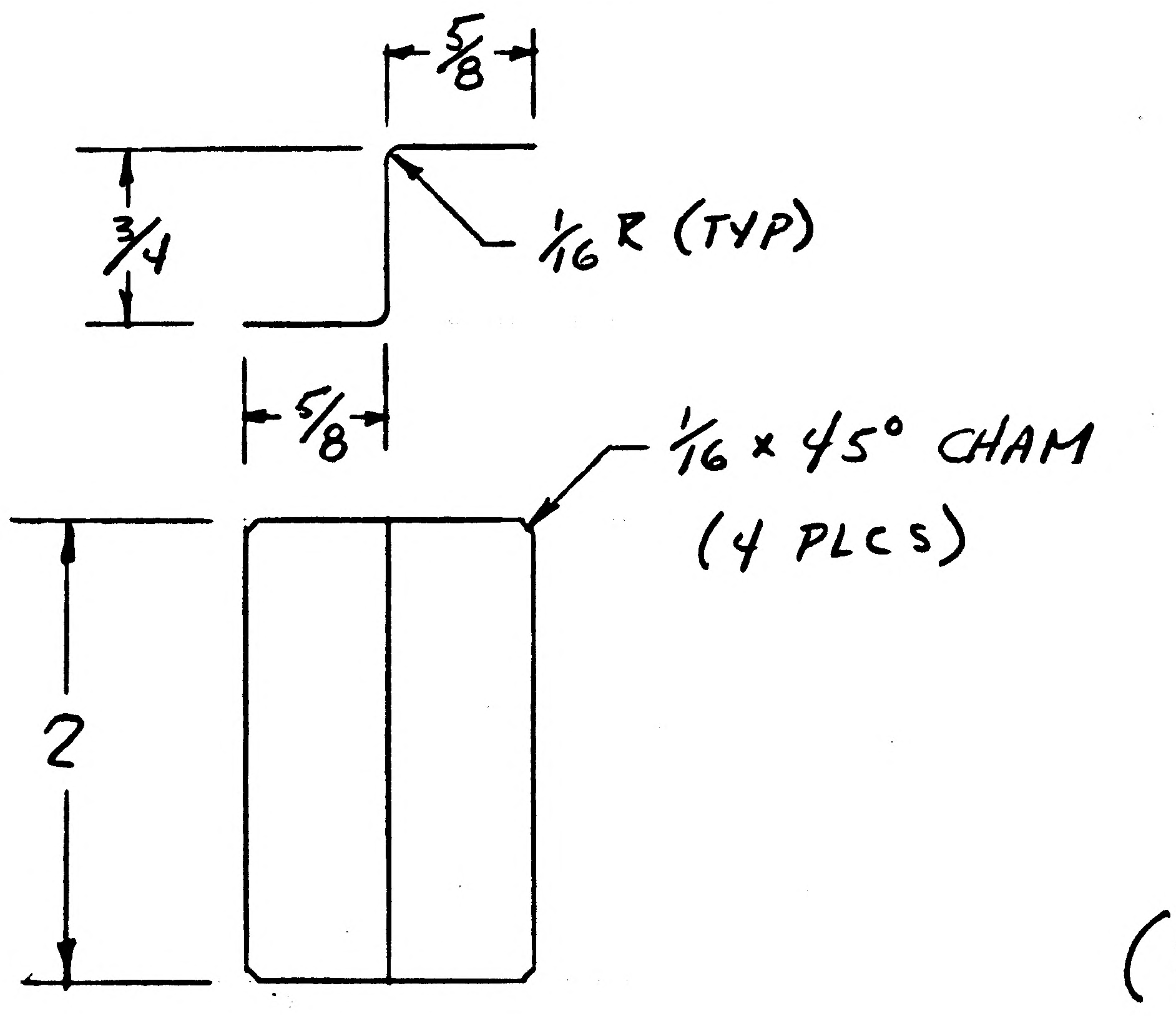
01

ENG 32.2 REV 3-65

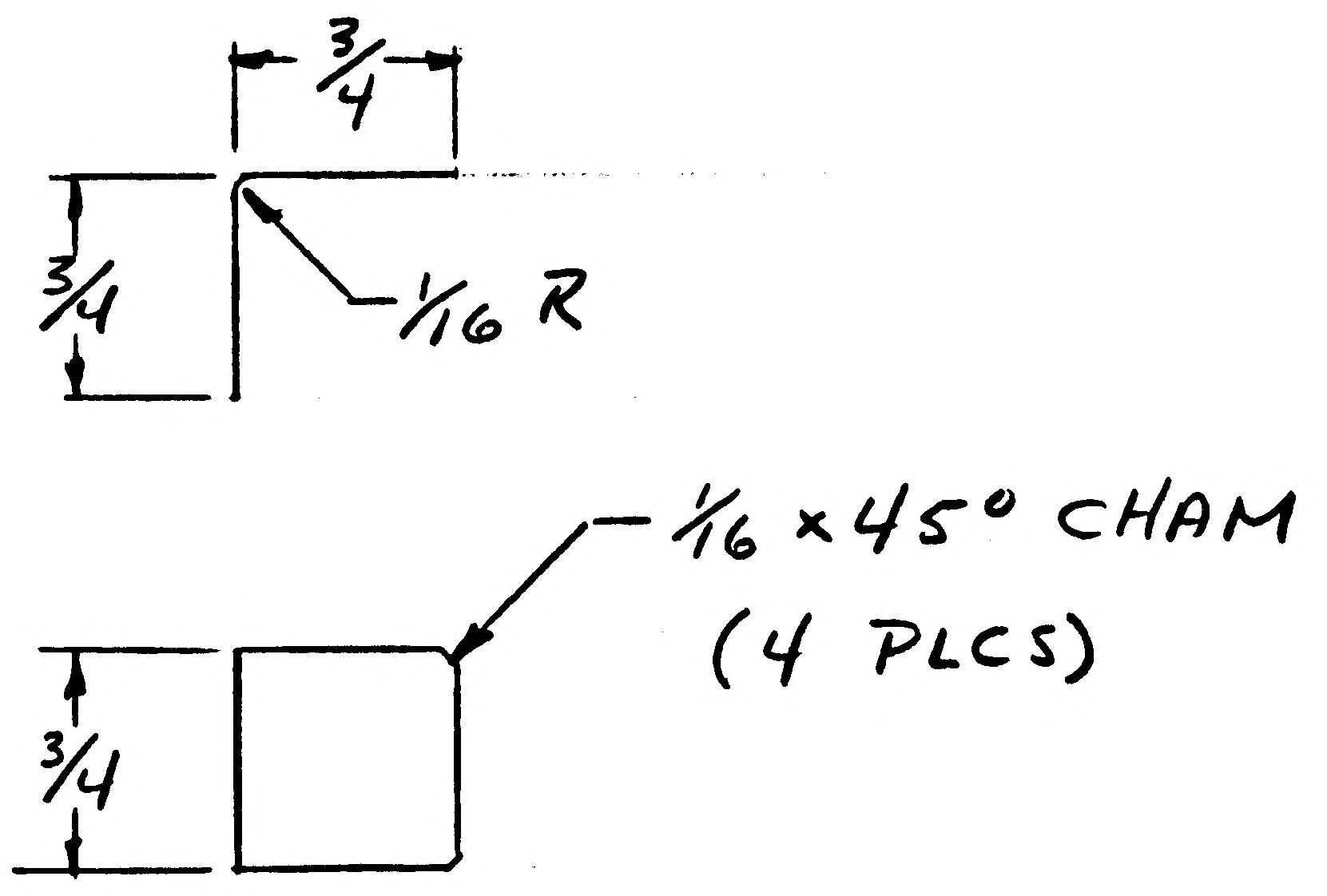
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18083	EO NO. A2
CONTROL INFO NO. LDW280A-0493	

CREATE -15 ZEE & -17 ANGLE AS SHN. N/A LDW280-28805 &
LDW280-28772 1 EACH REQ'D. 1 & T=E FIN:NONE. MTL - SEE NOTE 2
EFF: LEM-1 (31), LEM-2 (32), LEM-3 (33), LEM-4 (34), LEM-5 (35) LEM-6 (36)



-15 ZEE (STOCK SIZE - .0005 x 2½ x 2½)



-17 ANGLE
(STOCK SIZE - .0005 x 1 x 2)

ADD: NOTE 2 - "INCONEL 600 FOIL 12" WIDE PER AMS 5540E."

IN B/M

ON-11 REMOVE "MAKE FROM LDW280-17970-27"
ADD MATERIAL "SEE NOTE 2"
STOCK SIZE ".0005 x 4 x 6"

ON-13 REMOVE "MAKE FROM LDW280-17970-27"
ADD MATERIAL "SEE NOTE 2"
STOCK SIZE ".0005 x 3½ x 3½"

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG

REASON FOR EO: New Parts Req'd For Plume Impingement Shields & Correct Stock Size

DESCRIPTION OF EO: ADDED -15 & -17 & NOTE 2. ON-11 & -13 ADDED STOCK SIZE; REMOVED (MAKE FROM LDW280-17970-27)

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 TO LM-6	
		LTA-8	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS
✓		NOT AFFECTED

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	9/7/66				9/19/66		9-30-66 / 9/30/66

PRIORITY: C
DRAWING TITLE: ZEE - DESCENT STAGE - QUAD IV PLUME IMP. - SKIN UPPER
DRAWING NO.: LDW280-18083
EO NO.: A2

ISSUED BY BILL MALIK X1153 SECTION VDI GROUP NO. 335 PL 35
EMF

NAS 9-1100

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18083
EO NO. A3
CONTROL INFO NO. LDW280A-0751

ADD NOTE 3:

3. FOR -13 ONLY, FINISH PER LPC-280-5. PAINT NEAR SIDE.

IN B/M FOR -13, FOR FINISH ADD - SEE NOTE 3.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO PROVIDE TEMPERATURE CONTROL FINISH

DESCRIPTION OF EO: ADDED NOTE 3. FOR -13.

GAEC EO RELEASE: LE 10/4

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	7/27/66.	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY									
DATE		9/29/66				10/1/66		10-3-66	10/1/66

PRIORITY: C

DRAWING TITLE: ZEE DESCENT STAGE QUAD IV PLUME IMP.-SKIN UPPER

DRAWING NO. LDW280-18083

EO NO. A3

ISSUED BY J. BACKOFEN X1153

SECTION VEH DES INT

GROUP NO. 335 PL 35 EMF

01

NAS 9-1100

H.G

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18083
EO NO. A5
CONTROL INFO NO. LM-29-1022

THIS IS A REVISION OF E.O. A-2

-15 STOCK SIZE ".0005 x 2½ x 2½" S/B
".00125 x 2½x2½"

-17 STOCK SIZE ".0005 x 1 x 2" S/B
".00125 x 1 x 2"

ALL PARTS THAT HAVE BEEN MADE HAVE THICKNESSES (.00125) INDICATED ABOVE.

✓

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: E.O. A-2 HAS WRONG THICKNESSES (REF. RTE 02131-231)

DESCRIPTION OF EO: REF. E.O. A-2 ON -15 & -17, STOCK THICKNESSES ".00125" WAS ".0005."

GAEC EO RELEASE: LE; 017

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM 1(31) THRU LM 5(45)		
	LTA-3(15)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQD	DATE	1/25				—	1-6-67	1-11-67	1/9/67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	[illegible]	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~DWN~~

PRIORITY: C29
DRAWING TITLE: ZEE - D/S QUAD IV PLUME IMPINGEMENT - SKIN UPPER
DRAWING NO.: LDW280-18083
EO NO.: A5

ISSUED BY LIAISON R. STACHE X-4719 J. ALTMAN X7930 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

A

ENG 32.1 REV 3-65

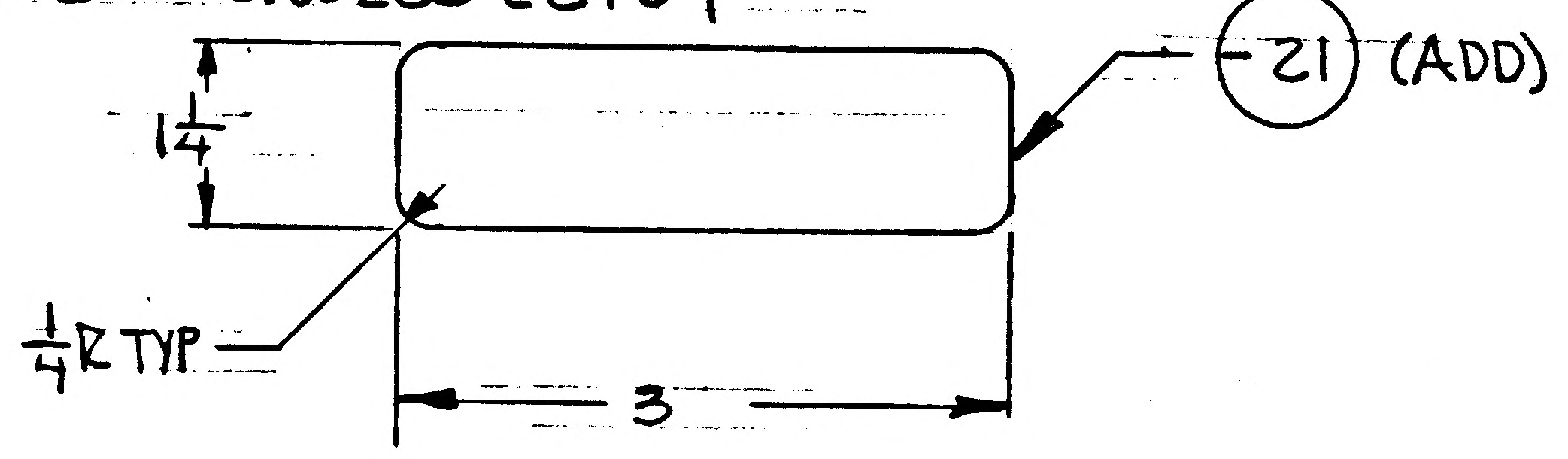
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18083		EO NO. A6	
CONTROL INFO NO. LDW280A-550			

IN F/D & L/M REMOVE -11 & ADD -19 IDENTICAL TO -11
EXCEPT MATL TO BE INCONEL 600 .00125 THICK PER AMS5540E

EFF FOR -19 LM-1(31) 1 REQD
N/A FOR -19 LDW280-28756

IN F/D & L/M REMOVE -13 & ADD -21 AS SHOWN. MATL FOR -21 TO BE
INCONEL 600 .00125 THICK PER AMS5540E
EFF FOR -21 LM-1(31) 1 REQD
N/A FOR -21 LDW280-28754



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: LCR 928 IMPROVE PAINT ADHESION

DESCRIPTION OF EO: REMOVED -11 & -13 ADDED -19 & -21

Ⓡ GAEC EO RELEASE: JK 3/13/7 2C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	3/6/67			3/4/67	3/6/67		3-11-67	3-13-67
5	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE QUAD IV DES STAGE UPPER	LDW280-18083	A6

ISSUED BY G ZEMAN / J. STRAHOSCH SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 912
CONTROL INFO NO. LDW280B2751

ON DASH NOS. NOTED * WITH N/A NOTED ** RESTRICT EFFECTIVITY REQUIREMENTS ON THE FOLLOWING DWG. TO LM-1(31) & LM-2(32). PARTS WERE USED ON LM-1(31) THRU LM-15(45)

DWG NO	DASH NO. *	TITLE	N/A **	CHANGE NO.
✓ LDW280-28803	-1	SEE DWG	LDW280-28804	A5
✓ -28805	-7		-28804	A7
✓ -28771	-9		-28770	B6
✓ -28772	-11		-28770	B7
-18083	-15		-28772	A7
✓ -18083	-17		-28772	
-18083	-15		-28805	
-18083	-17		-28805	
-18125	-11		-28771	B3
-18125	-13		-28771	
-18125	-11		-28803	
LDW280-18125	-13	SEE DWG	LDW280-28803	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2360	PKG 18 ⑤

REASON FOR EO: PLUME IMPINGEMENT PROTECTION

DESCRIPTION OF EO: RESTRICTED - * WAS USED ON LM-1 (31) THRU LM-15(45)

GAEC EO RELEASE: VC 4/8/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY									
DATE	4/3/68	4/3/68		4-1-68	4/3/68		4/3/68	4-8-68
P	VDI	THERMAL SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 912

4.2.
ISSUED BY F. LANZARO/P. THORJUSEN x1153 SECTION VDI GROUP NO. 335 PL 25
040568

01

NAS 9-1100

LDW280-18086 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-15(45)	2 EA
		LM-14(44)	2 EA
		LM-13(43)	2 EA
		LM-12(42)	2 EA
		LM-11(41)	2 EA
		LM-10(40)	2 EA
		LM-9(39)	2 EA
		LM-8(38)	2 EA
		LM-7(37)	2 EA
		LM-6(36)	2 EA
		LM-5(35)	2 EA
	LDW280-54791	LM-4(34)	2 EA
	LDW280-52791	LM-3(33)	2 EA
	LDW280-52791	LM-2(32)	2 EA
	LDW280-28791	LM-1(31)	2 EA
LM	LDW280-28791	LTA-8(18)	2 EA
PART NO. LDW280-18086-15 & -17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-54791	LM-4(34)	1
PART NO. LDW280-18086-21		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
	LDW280-54791	LM-4(34)	1 EA
	LDW280-52791	LM-3(33)	1 EA
	LDW280-52791	LM-2(32)	1 EA
	LDW280-28791	LM-1(31)	1 EA
LM	LDW280-28791	LTA-8(18)	1 EA
PART NO. LDW280-18086-13,-14 & -19		GAEC SCH NO. 50.2	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	B	B	B		B				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL^C INFO B		
LAST DASH NO. USED	-21	PRIM NO. 207	LE(001) NP-68- 3/11/7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	D. RAGAS	RELIABILITY	
LAYOUT BY	D. RAGAS		
CHECKED BY	JG		
GR.LEADER	STRAKOSCH 7-21-66		
VEH-DES-INT	W. BISCHOFF 7-25-66		
STRUCTURES	W. HAUCK 8-3-66	PROJ ENGR	CARBEE & EV. 8-11-66
STRUCTURES	HILDERMAN 8-3-66	REL GROUP	BOTTI 8-11-66
WEIGHTS	D. ROBESCH 8-9-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - BEAM PANEL ELECT. SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18086 B
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-18086 'NO CHANGE' 8-11-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE - LAST REV NO CHANGE SH1OF4 WAS SH1OF3 LOFTED DWG WAS DIMENSIONED DWG ADDED SH 1.10.	A. MONTEMAGNO	9-20-66				
A	1	1.00, 1.10, 2.00 & 3.00						EO A1	REMOVED -11 & ADDED -19	LTA-8, LM-1 THRU LM-6		-11	MONTE. 9-20-66 EG		
B	1	1.00						LEO 280-320	FOR -13-14-15-17 & -19 ADDED LM-7 THRU LM-15 EFF	LM-7 THRU LM-15	NOT	REQD	W. CONROY 2-17-67		
	2	3.00						EO B2	ADDED TO -19 DRILL #60 (.039-.044)	LTA-8 LM-1 THRU LM-15	✓				
	3	3.00						EO B3	ON-19 ADDED DRILL #60 (.039-.044) 2 HOLES	LTA-8 LM-1 THRU LM-15	✓				
	4	3.00						EO B4	ON-19 ADDED .508±.005 DIA REMOVED .475±.005 & .508±.005 DIMS.	LTA-8 LM-1 THRU LM-15	✓				
	5	3.00						EO B5	ON-19 ADDED #19 HOLE ADDED EO TO RECORD BLOCK FOR LTA-8	LTA-8 LM-1 THRU LM-15	✓				
	6	1.00, 2.00 3.00					✓	EO B6	ADDED -21, REVISED -13-14-15-17 & -19 N/A LDW280-54791 WAS LDW 280-52791 FOR LM-4 THRU LM-15	LM-4 THRU LM-15	NOT	REQD			

CHG APPROVED	LTR	GROUP LDR	VDI	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
	B						

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18086	B
SCALE NONE		SHEET 1.10	

ENG 77.3 5-65

01 5

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18086-21	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.050x4x4	NONE	88	
		-19	↑	CHANNEL	↑	QQ-A-250/4	2024	.050X7 3/4X11 3/4	-T42	↑	
		-17		DOUBLER		↑	2024-T3	.040X2 1/4X2 1/2	NONE		
		-15		CLIP			↑	.040X1 3/4X 1 7/8	↑		
		-14	↓	CHANNEL	↓	↓	↓	.032X2 1/2X11 3/4	↓	↓	
		LDW280-18086-13	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024-T3	.032X2 1/2X11 3/4	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						-T42	AL HEAT TREAT	MIL-H-6088

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

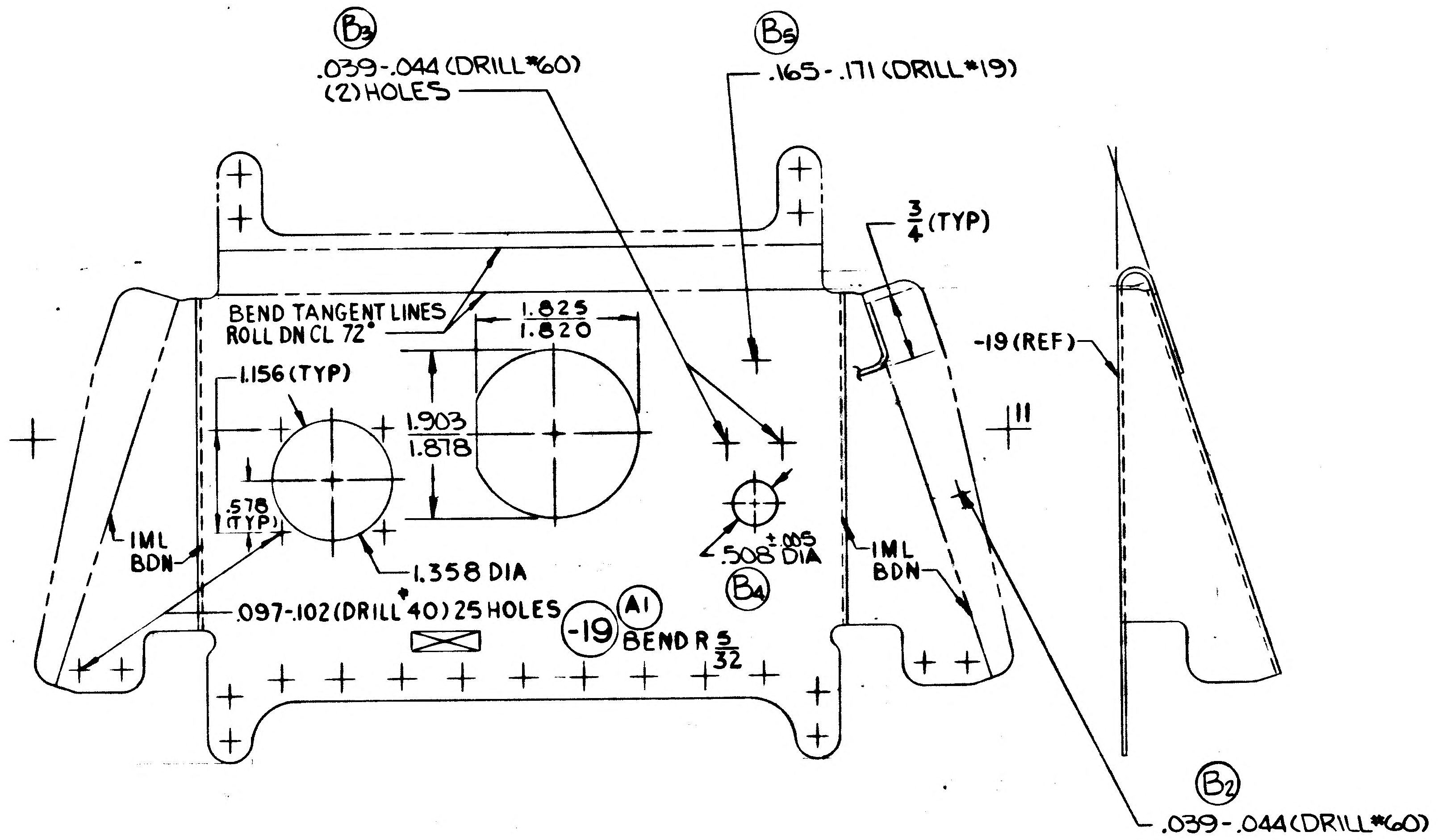
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18086	B
SCALE NONE			SHEET 2.00

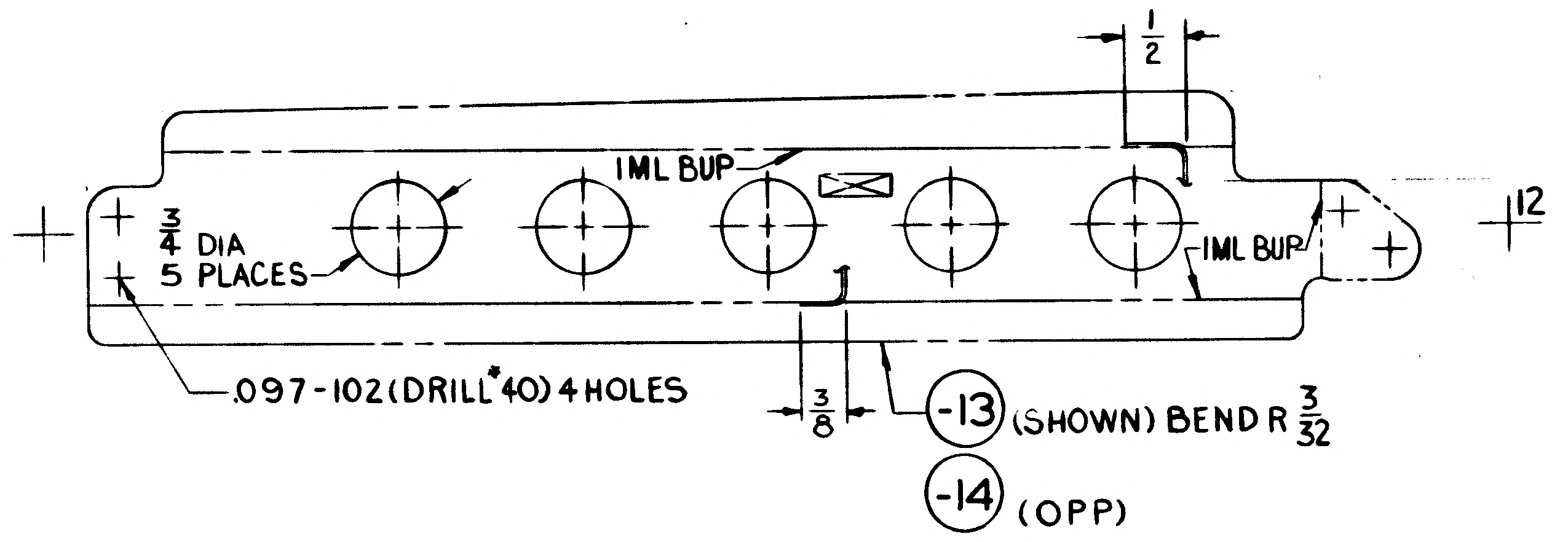
ENG 77.2 7-65

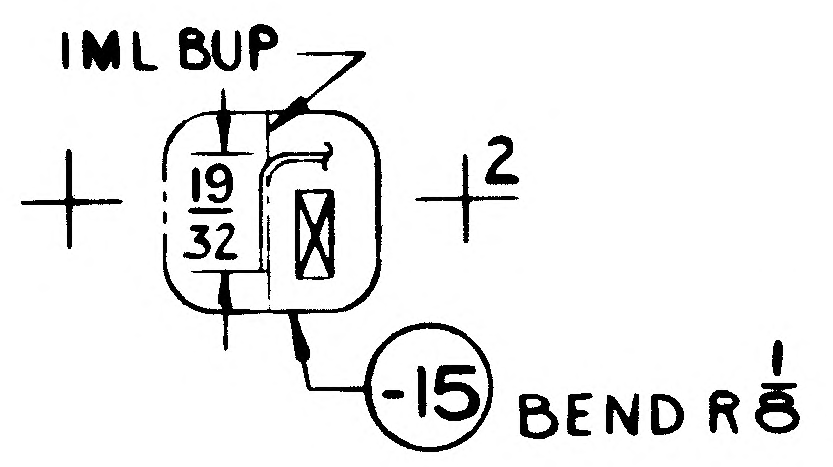
01

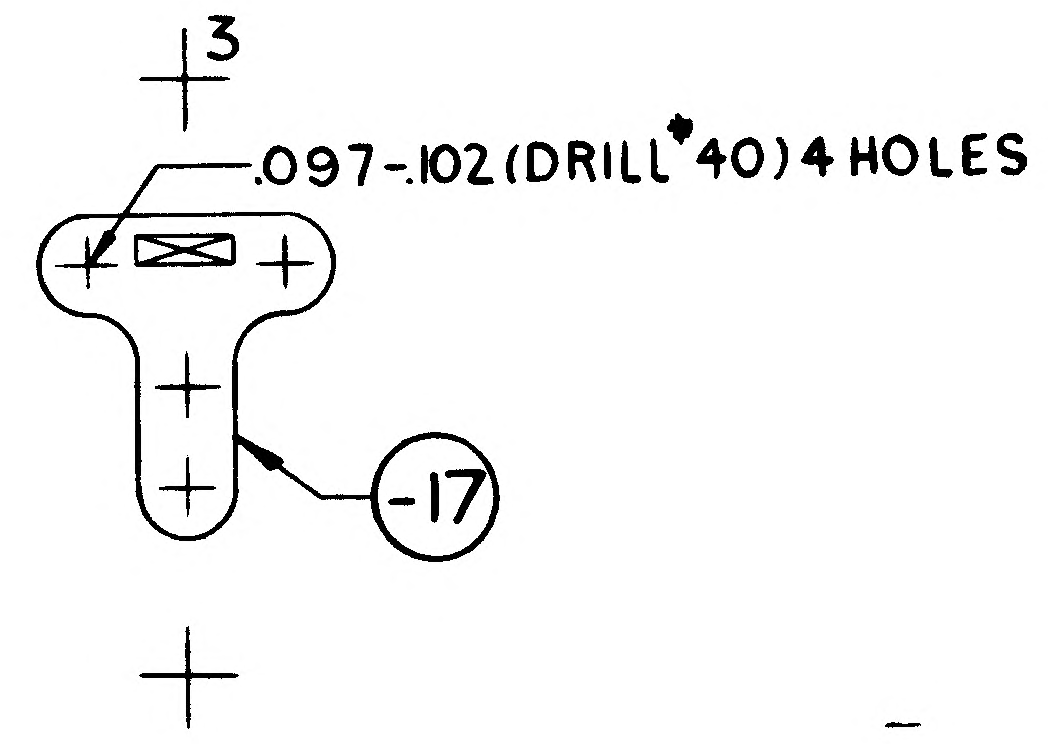
NAS 9-1100

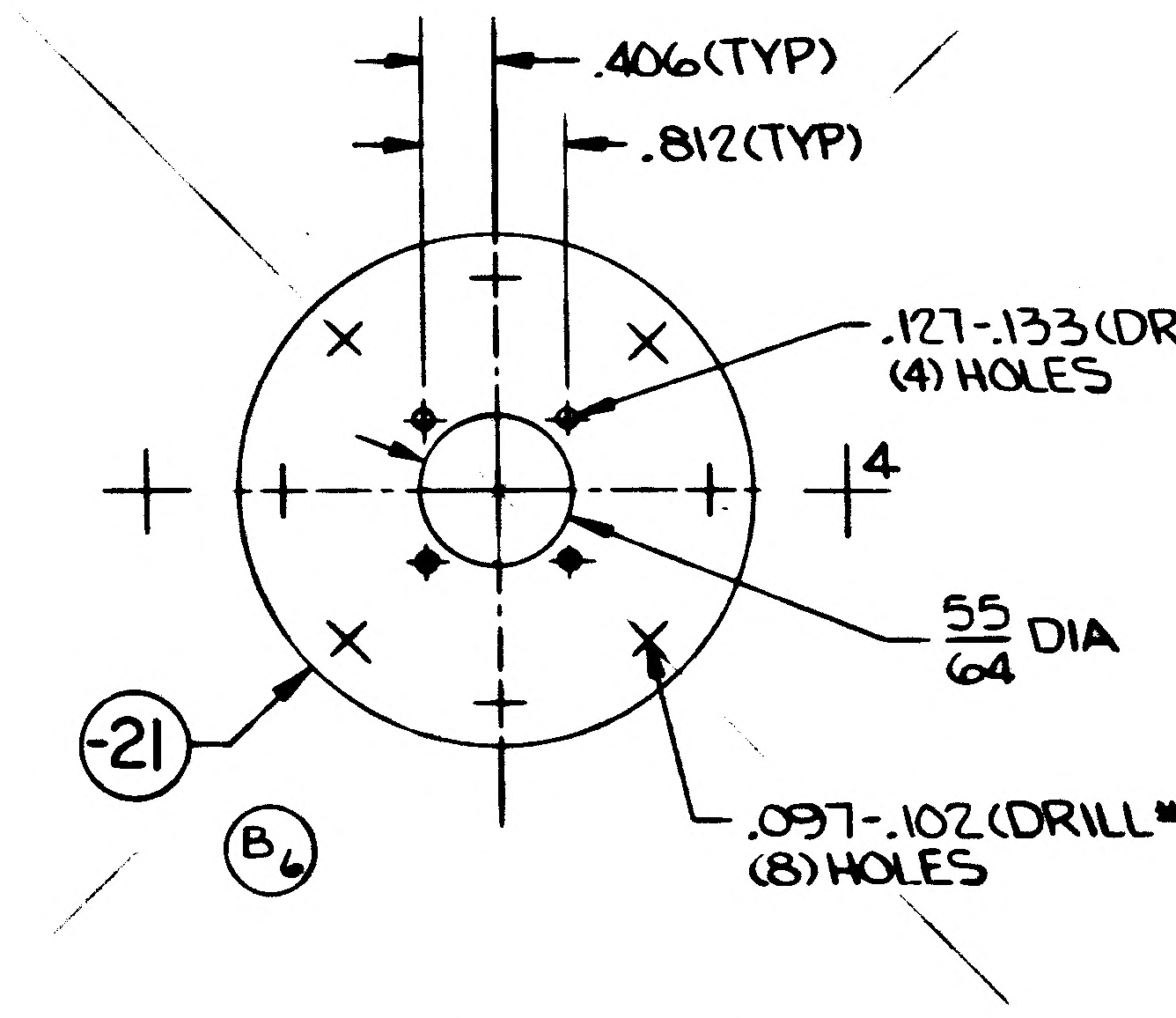

B3
.039-.044 (DRILL #60) (2) HOLES
B5
.165-.171 (DRILL #19)
3/4 (TYP)
BEND TANGENT LINES ROLL DN CL 72°
1.825 / 1.820
1.156 (TYP)
1.903 / 1.878
-19 (REF)
11
.578 (TYP)
IML BDN
1.358 DIA
.508 ±.005 DIA
B4
IML BDN
.097-.102 (DRILL #40) 25 HOLES
-19 A1 BEND R 5/32
B2
.039-.044 (DRILL #60)

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.


1/2
IML BUP
3/4 DIA 5 PLACES
IML BUP
12
.097-.102 (DRILL #40) 4 HOLES
3/8
-13 (SHOWN) BEND R 3/32
-14 (OPP)


IML BUP
19/32
2
-15 BEND R 1/8


3
.097-.102 (DRILL #40) 4 HOLES
-17


.406 (TYP)
.812 (TYP)
.127-.133 (DRILL #30) (4) HOLES
4
55/64 DIA
-21
B6
.097-.102 (DRILL #40) (8) HOLES

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

LDW280-18086 B

RECORD DATA		
MODEL	EO NO	EFFECTIVITY
LM	EO B5	LTA-8

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	F	26512	LDW280-18086	B
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2

01

NAS 9-1100

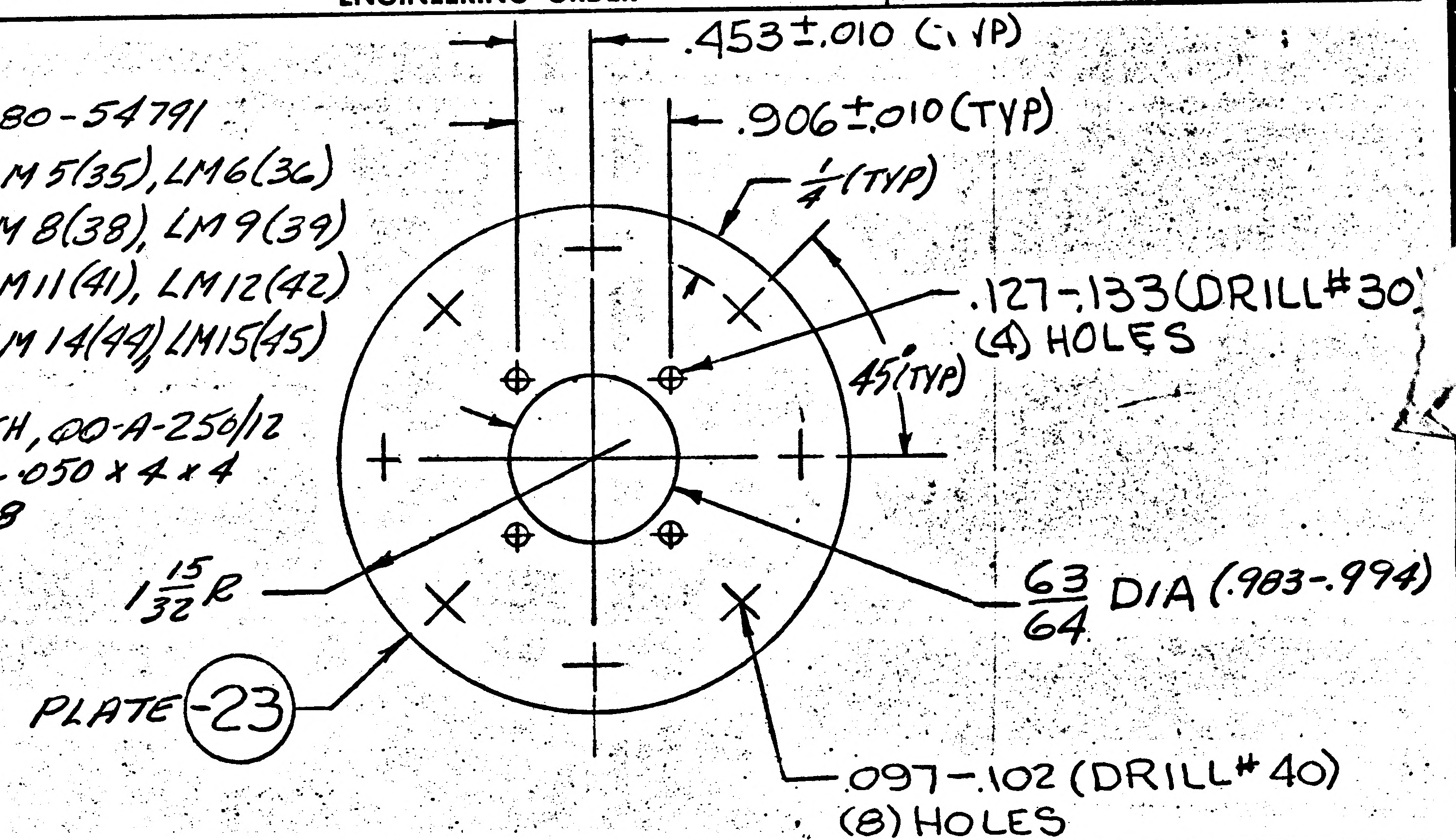
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT. NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18086 | EO NO. C1
CONTROL INFO NO. LDW280A 8300

ADD: -23 DETAIL
EFF: N/A LDW280-54791
LM4(34), LM5(35), LM6(36)
LM 7(37), LM 8(38), LM9(39)
LM 10(40), LM11(41), LM12(42)
LM 13(43), LM 14(44), LM15(45)

MAT'L ~ AL ALLOY SH, QQ-A-250/12
7075-T6 ~ .050 x 4 x 4
FINISH 88


.453±.010 (TYP)
.906±.010 (TYP)
1/4 (TYP)
.127-.133 (DRILL# 30) (4) HOLES
45° (TYP)
63/64 DIA (.983-.994)
1 15/32 R
PLATE -23
.097-.102 (DRILL# 40) (8) HOLES

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1383	2

REASON FOR EO
J-199 CONNECTOR SIZE 14
REPLACES SIZE 12

DESCRIPTION OF EO
ADDED -23 PLATE
REMOVED -21 PLATE

GAEC EO RELEASE: C — JK 8/9/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-4(34) THRU LM-15 (45)		

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP -21

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	7/31/67 VDI			7/31/67	8/2/67		8/3/67	8/3/67

PRIORITY: C
DRAWING TITLE: CHANNEL - DESCENT STAGE - BEAM PANEL ELECT. SUPPORT
DRAWING NO.: LDW280-18086
EO NO.: C1

8/4
ISSUED BY G. PLANTE, 1153 SECTION VEH DES INT GROUP NO. 335 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG NO. LDW280-18086 EO NO. C2
CONTROL INFO NO. LDW280B 0014

DELETE -23 EFF: LM4(34) THRU LM-15(45) N/A LDW280-54791.
REMOVE: LM-4(34) THRU LM-15 (45) EFFECTIVITY FROM -13, -14, -15, -17, -19.
N/A LDW280-54791 (WAS EFF: LTA-8, LM-1 THRU LM-15)

PKG # 26 (5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	ICD 2011 CCA 668

REASON FOR EO: PROVIDE WIRE MOUNTING BRKT FOR MODULAR EQUIPMENT STOWAGE.

DESCRIPTION OF EO: ON -13, -14 -15, -17, -19 EFF; DELETED LM-4 THRU LM-15 REMOVED -23

GAEC EO RELEASE: JK 2/19/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS			APPROVED BY	Jap			PSF	WPB		Jap	
✓				-13, -14 -15, -17 -19, -23	DATE	2/9/68			2-9-68	2/16/68		2/9/68	2/14/68
REVISE DWG	RECORD EO	REWORK		SCRAP	D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: CHANNEL ~ DESCENT STAGE ~ BEAM PNL. ELECT. SPT.

DRAWING NO. LDW280-18086 EO NO. C2

2/23/68 [illegible]D BY J.J. ROGERS / P. THORJUSEN X1392 SECTION VEH DES & INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18088

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28807	LEM1 (31)	1
LEM	LDW280-28807	LTA8 (18)	1

PART NO. LDW280-18088-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28807	LEM1 (31)	1
LEM	LDW280-28807	LTA8 (18)	1

PART NO. LDW280-18088-11 GAEC SCH NO. 50.2

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REF INFO PRIM NO. 207 VE(001) MP-8-7-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY L.M. GRIECO 8-3-66
RELIABILITY
LAYOUT BY
CHECKED BY
GP LEADER 8/3/66
VEH DES INT 8/4
STRUCT. 8/5
STRUCT. 8/5
WEIGHTS 8-9
PROJ ENGR R.M. Carbee 8/7
REL GROUP 8-10-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT - DESCENT STAGE - SCIENTIFIC EQUIPMENT BAY - STRAP

SIZE B CODE IDENT NO. 26512 LDW280-18088

SCALE NONE SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18088-13	E	PLATE	AL AL SHT	QQ-A-250/12	7075-T6	.050 x 1 1/4 x 2 3/8	NONE	88	
		LDW280-18088-11	E	CLIP	AL AL SHT	QQ-A-250/12	7075-O	.090 x 3/4 x 2 5/8	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18088

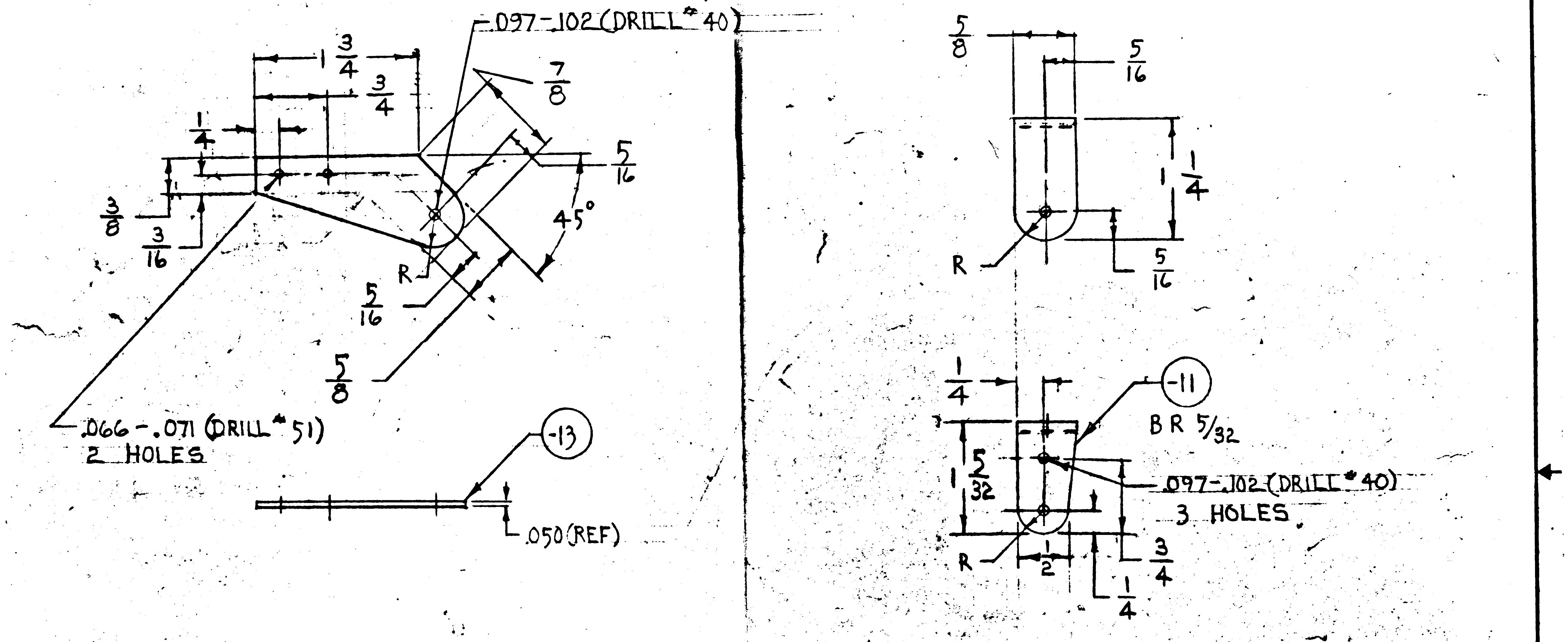
SCALE NONE | SHEET 2.00

3

ENG 77.2 7-65

01

NAS 9-1100


.097-.102 (DRILL # 40)
1 3/4
3/4
7/8
1/4
5/16
3/8
3/16
45°
R
5/16
5/8
.066-.071 (DRILL # 51)
2 HOLES
-13
.050 (REF)
5/8
5/16
1 1/4
R
5/16
1/4
-11
BR 5/32
1 5/32
.097-.102 (DRILL # 40)
3 HOLES
R
1/2
3/4
1/4

LAYOUT RELEASE TO BE REDRAWN

ON PROD FORMAT

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
SIZE B	CODE IDENT NO. 26512	LDW280-18088
SCALE FULL		SHEET 3.00

ENG 73.1 6-64

01

NAS 9-1100

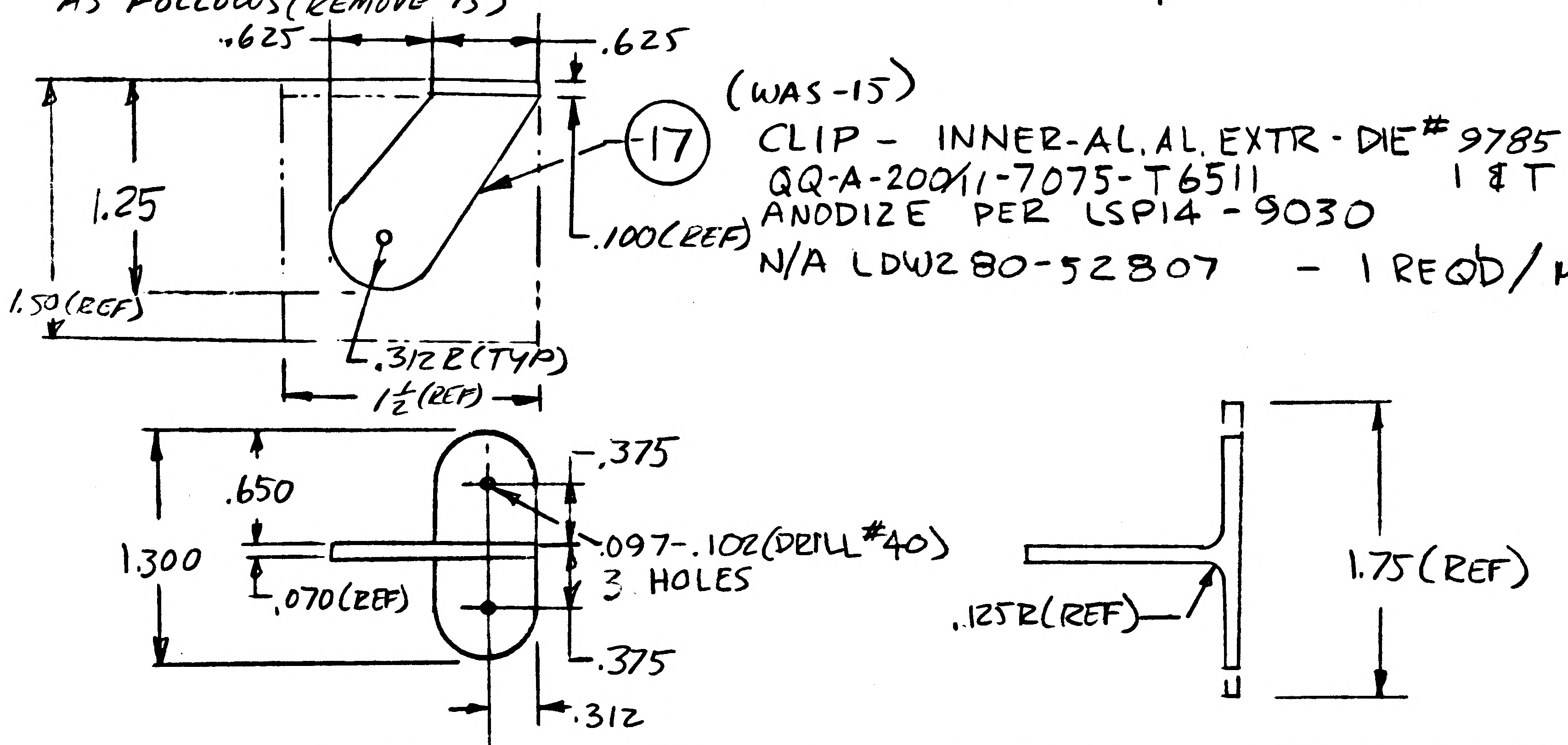
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18088	EO NO. A2
CONTROL INFO NO. LDW 280-A-0012	

(1) F/D & B/M ADD -17 IDENTICAL TO -15 EXCEPT AS FOLLOWS (REMOVE -15)

THIS EO. IS A REVISION OF E.O A1



(WAS -15)
CLIP - INNER-AL.AL. EXTR - DIE # 9785 × 1½
QQ-A-200/11-7075-T6511 I & T:E
ANODIZE PER LSP14-9030
N/A LDW280-52807 - 1 REQD/MOD

.097-.102 (DRILL #40)
3 HOLES

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG

REASON FOR EO: TO ELIMINATE MACHINING OF DETAIL

REF E.O. A1

DESCRIPTION OF EO: ADDED -17, REMOVED -15

2
GAEC EO RELEASE: FK 9/19/6

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-2(32)	
		THRU	
		LEM-6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT	AJR		~	W		RMC	
✓			-15	DATE	9/1/66	104		~	9/1/66		9-17	9/8/66
REVISE DWG	RECORD EO	REWORK	SCRAP	8/31/66	VDI	~~SUPPORT~~ WTJ	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: SUPPORT - D/S - SEQ BAY - STRAP
DRAWING NO.: LDW280-18088
EO NO.: A2

ISSUED BY E.J. COMISKEY, 6455 NITES
SECTION VDI / STRAKOSCH
GROUP NO. 335
PL 5

01

NAS 9-1100

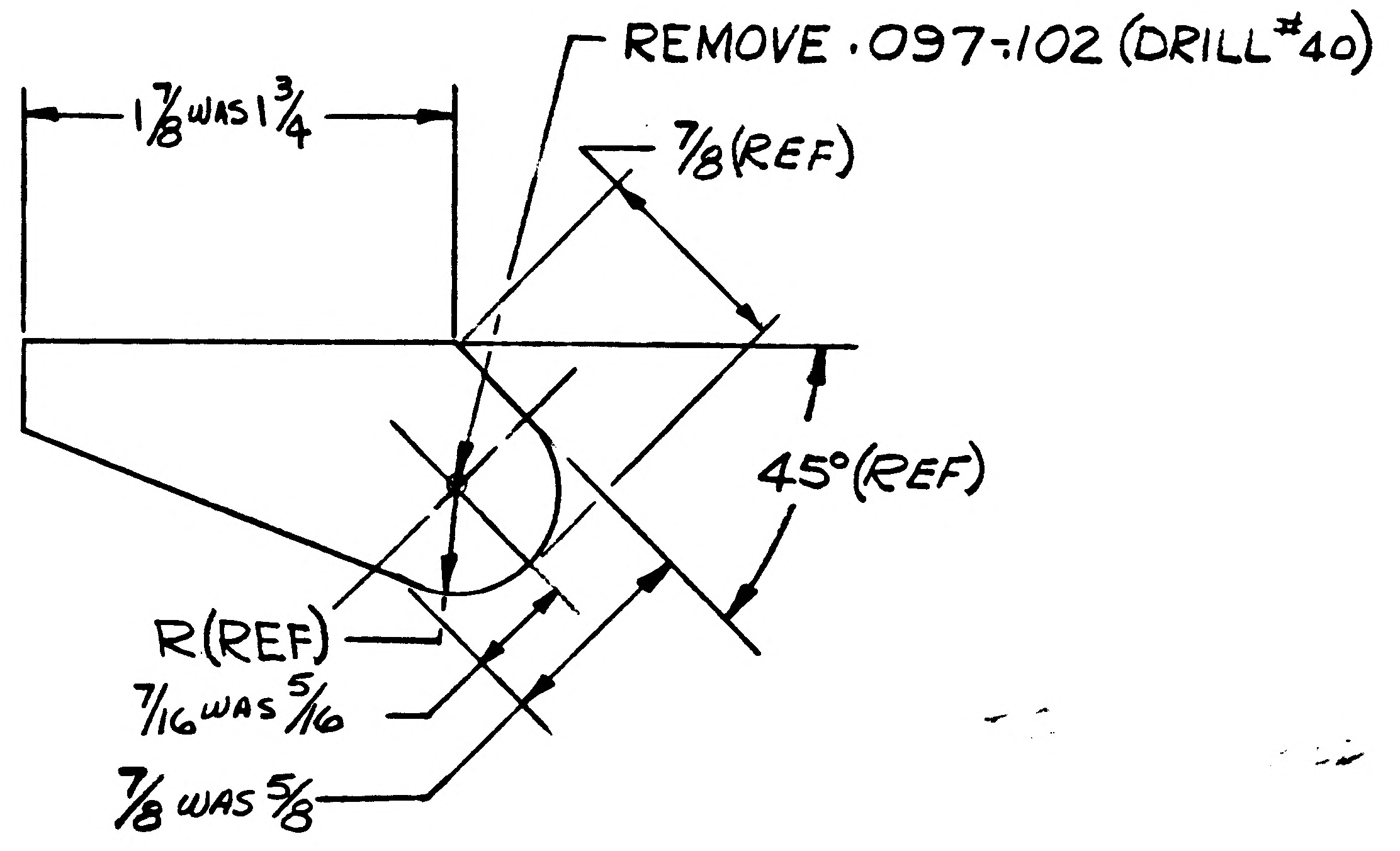
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18088		EO NO. A3
CONTROL INFO NO. LDW280-A0255		

IN F/D
ADD -19 IDENT TO -13 EXCEPT AS NOTED BELOW

REMOVE -13



2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
TO RELOCATE ~~THERMAL~~ SHIELD SUPPORT	INF/D & B/M ADDED -19 REMOVED -13	① 9-24

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8 (18) LEM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-13

APPROVED BY								
DATE	9/8/66	10-4			9/12/66		9-23-66	9/19/66
	VDI	~~SUPPORT~~ WS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPPORT D.S. SCIENTIFIC EQUIPMENT BAY STRAP	LDW280-18088	A3

ISSUED BY R. CLARK / J STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1438
CONTROL INFO NO. LDW280B7423

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18088	B3	SEE DWG
-18093	B3	
-18095	B2	
-18110	B1	
-18118	A4	
-18119	A4	
-18137	B3	
-18140	B1	
LDW280-18190	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG 8 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: 5/5/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	[illegible]			RBH	WJC		JAP	JM
DATE	4/4/69			4-2-69	4/8/69		4/10/69	5-5-69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1438

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN ORIGINAL E.O.

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1526
CONTROL INFO NO. LDW 280B 8105

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW280-17998 ✓	SEE DWG	E2
18038 ✓		B5
18088 ✓		B4
18093		B4
18095		B3
110		B2
118		A5
119		A5
LDW280-18140	SEE DWG	B2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 25 & 26 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23 [redacted]) REQMTS

GAEC EO RELEASE: 8-5-69; JK 8/9/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

	APPROVED BY			GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY	PET				N			Bauman
DATE	7/29/69			7/29/69	8/1/69		8/1/69	8-9-69
	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1526

ISSUED BY 8-22-69 G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18089 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23541	LEM-6㊱	1EA
↑	LDW280-23541	LEM-5㉟	1EA
	LDW280-23541	LEM-4㉞	1EA
	LDW280-25541	LEM-1㉛	1EA
	LDW280-25541	LTA-5⑮	1EA
↓	LDW280-52541	LEM-3㉝	1EA
LEM	LDW280-52541	LEM-2㉜	1EA

PART NO. LDW280-18089-11,-13 | GAEC SCH NO. 502

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00
REV	A	A	A		A
SHEET					
REV					
SHEET					
REV					

LAST SECT LTR USED -
LAST DASH NO. USED -13

GRUMMAN REL INFO A
PRIM NO. LE(60)
207 MP-A 9-6-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY T.MAYBO 8-17-66
LAYOUT BY G.HANSMANN
CHECKED BY F 8-20-66
~~GR.LEADER~~
VEH.DES.INT 9/1/66
STRUCTURE 9/2/66
STRUCTURE Hilderman 9/2
WEIGHT Rabsch 9-12
PROJ ENGR R.M. Carbee 9-19
REL GROUP Botti 9-19-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE-PROP.LINES SPT-
R.H. LOWER DECK-AFT INBD.

SIZE B | CODE IDENT NO. 26512 | LDW280-18089 | A
SCALE NONE | SHEET 1.00 OF 4.00

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00						EO.A1	EO A1. INITIAL DRAWING RELEASE PARTS MADE PER EO	LEM-1 TO LEM-6, LTA5	NOT	REQ'D	T. MAYBO 8-17-66		
	2	1.10, 3.00						②	ON-13 1/8 CHAMFER SHOULD BE 1/16	NOTED	✓				

CHG APPROVED	LTR	GROUP LDR	S.S.ENGR	VEH.DES.INT	STRUCTURE	STRUCTURE	WEIGHT	RELIABILITY
	A							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18089	A

SCALE NONE

SHEET 1.10

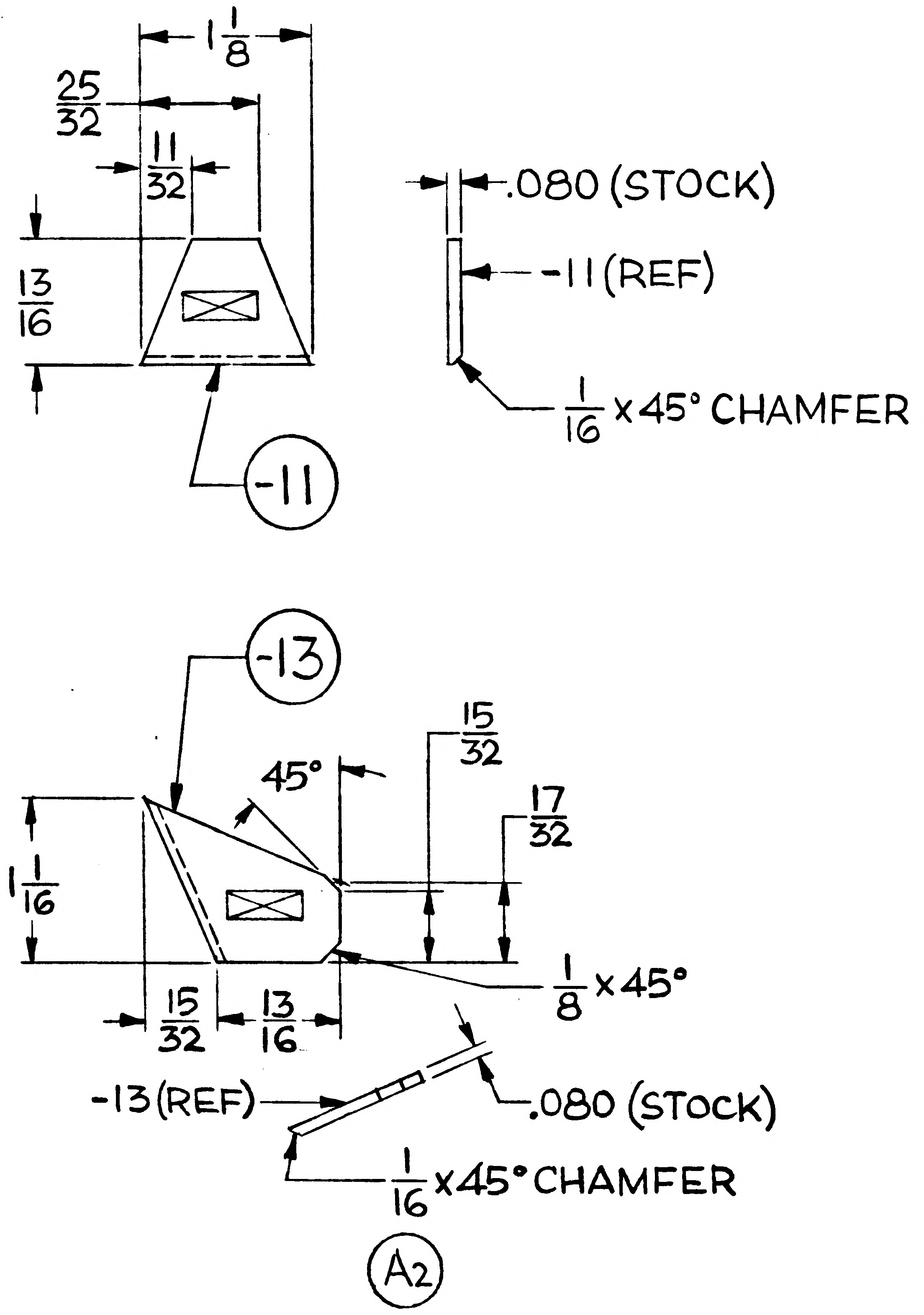
ENG 77.16 3-66

01

NAS 9-1100

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.



MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED

NOTES CHECKED √ APPLY TO THIS DWG

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓	FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.		EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.		ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.		REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING		SYMBOL √ DENOTES SURFACE TO BE MACHINED	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.		TOLERANCE ON FLANGES IS ± 1/32	
$\overline{125}\surd$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10		LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
$\overline{200}\surd$ FOR ALL DRILLED HOLES			
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS			

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18089	A
SCALE FULL		SHEET 3.00	

ENG 73.11 12-64

01 NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 547
CONTROL INFO NO. LDW280A-6136

FOR ALL DASH NO.* ON THE FOLLOWING DWGS WHICH HAVE LM-6 EFF ADD LTA-3D|R EFF QTY & N/A TO REMAIN THE SAME AS ON LM-6

DRAWING *	TITLE	CHANGE NO.
LDW280-17787 ✓	SEE DWG	B2
-17792 ✓		B5
-17797 ✓		A2
-17830 ✓		B1
-17841 ✓		A8
-17842 ✓		B1
-17843 ✓		A2
-17844 ✓		A2
-17845 ✓		A2
-17846 ✓		A2
-17850 ✓		B2
-17856 ✓		A2
-17874 ✓		B2
-17882 ✓		B1
-17883 ✓		B3
-17884 ✓		B2
-17885 ✓		B3
-17886 ✓		C4
-17887 ✓		B2
-17891 ✓		A3
-17906 ✓		B1
-17943 ✓		B2
-17948 ✓		B1
-17958 ✓		B2
-17969 ✓		B2
-17973 ✓		A3
-17977 ✓		B1
-17981 ✓		B1
-18064 ✓		B1
-18065 ✓		C1
-18066 ✓		A2
-18067 ✓		A3
-18068 ✓		A2
-18089 ✓		B2
-18090		B4
-18137		B2
-18195		C2
LDW280 -18202		B2
LDW280P 18133		A2
LDW 280-54684		A2
LDW 330-52056		B3
	SEE DWG.	

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	LC019-1242

REASON FOR EO: FAILURE OF LTA-3D IN STATIC TEST

DESCRIPTION OF EO: IN M/B FOR * ADDED LTA-3DR EFF

GAEC EO RELEASE: C JK 4/4/67 2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R (46)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD
APPROVED BY: 5 YDI, DATE 3/28/67
GROUP LEADER: 3/28/67
STRESS GROUP: WJN 3/31/67
PROJ ENGRG: 3-30-67
4/4/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 547

ISSUED BY G. BARNES/J. STRAKOSCH X1153 SECTION YDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18090 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25576	LM-1(31)	2
↕	↕	LTA-8(18)	2
LM	LDW280-25576	LTA-5(15)	2
PART NO. LDW280-18090-13			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25576	LEM-1(31)	2
LEM	LDW280-25576	LTA-8(18)	2
LEM	LDW280-25576	LTA-5(15)	2
↕	LDW280-23576	LEM-2(32)	2
LEM	LDW280-23576	LTA-3(13)	2
PART NO. LDW280-18090-15			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25576	LEM-1(31)	6
LEM	LDW280-25576	LTA-8(18)	6
LEM	LDW280-25576	LTA-5(15)	6
↕	LDW280-23576	LEM-2(32)	8
LEM	LDW280-23576	LTA-3(13)	8
PART NO. LDW280-18090-11			

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00						
REV	B	B	B	B						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED —
LAST DASH NO. USED -15
GRUMMAN REL INFO B
PRIM NO. DK(001)
ME-N

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 .020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II
DRAWN BY AUGELLO 8-29-66
RELIABILITY
LAYOUT BY MARZELLA
CHECKED BY D. FASS 9-1-66
GR LEADER
VEH DES INT 7/3/66
STRUCTURES 7/8/66
STRUCTURES
WEIGHTS L. Garcia 9/13/66
PROJ ENGR R. M. 9-20
REL GROUP 9-20-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE ~ SCIENTIFIC
EQUIPMENT BAY ~ SPACER

SIZE B | CODE IDENT NO. 26512 | LDW280-18090 | B
SCALE NONE | SHEET 1.00 OF 4

G 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10, 2.00 & 3.00						EO A1 Ⓡ	EO A1 INITIAL DWG RELEASE PARTS MADE PER E.O.	LTA-3,5 & 8. LEM-1,-2,-3-4, -5 & -6	NOT	REQD	AUGELLO 8-29-66		
B	1	1.00						EOB1	FOR-13 REMOVED LTA-3(13), LM-2(32) THRU LM-6(36) EFF. FOR -11, (8) REQD. PER MOD. FOR LTA-3, LM-2 THRU LM-6 WAS (6)	LTA-3(13) LM-2(32) THRU LM-6		-13	S. CARANO 12-7-68		
	2	1.00						LEO280-320	FOR-11,-15 ADDED LM-7 THRU LM-15 EFF.	LM-7(37) THRU LM-15(45)	NOT	REQD			
	3	1.00 2.00 3.00					✓	EOB3 LCD 1197	FOR-13 REMOVED LM-3(33) THRU LM-15(45) REQMTS ADDED -17 (-17 MAY BE MADE BY REWORKING -13)	LM-3(33) THRU LM-15(45)	NOTED				
	4	1.00					✓	LEO280-547 LCD - 1242	IN MOD/BLK FOR -11 & -15 ADDED LTA-3 D/R EFF.	LTA-3DR	NOT	REQD.			
	5	1.00					✓	EOB5 LCD - 1197	FOR -11,-15 & -17 REMOVED LM-3(33) THRU LM-15(45) REQMTS.	LM-3(33) THRU LM-15(45)		-11 -15 -17			
	6	1.00					✓	EOB6	REF EOB5: DELETED LTA-3DR REQMTS FROM -11,-15,-17	LTA-3DR					
	7			Ⓡ			✓	LCD 1197	REF EO B3: REMOVED LM-3 THRU LM-15 FOR -13 NOT APPLICIABLE (REF EO B1)	LM-3 THRU LM-15	NOT	ED	1/13/69	F. Zubia	

CHG APPROVED LTR	GROUP LDR	GR LEADER	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
A											
B	Thoyinsen 1-3-69	JKS 1/4/69									

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18090	B

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18090-15	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.071 X 3/4 X 1 1/2	NONE	88	
		LDW280-18090-13	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.071 X 3/4 X 1 3/8	NONE	88	
		LDW280-18090-11	E	PLATE	AL ALLOY SH.	QQ-A-250/12	7075-T6	.071 X 3/4 X 1 1/4	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

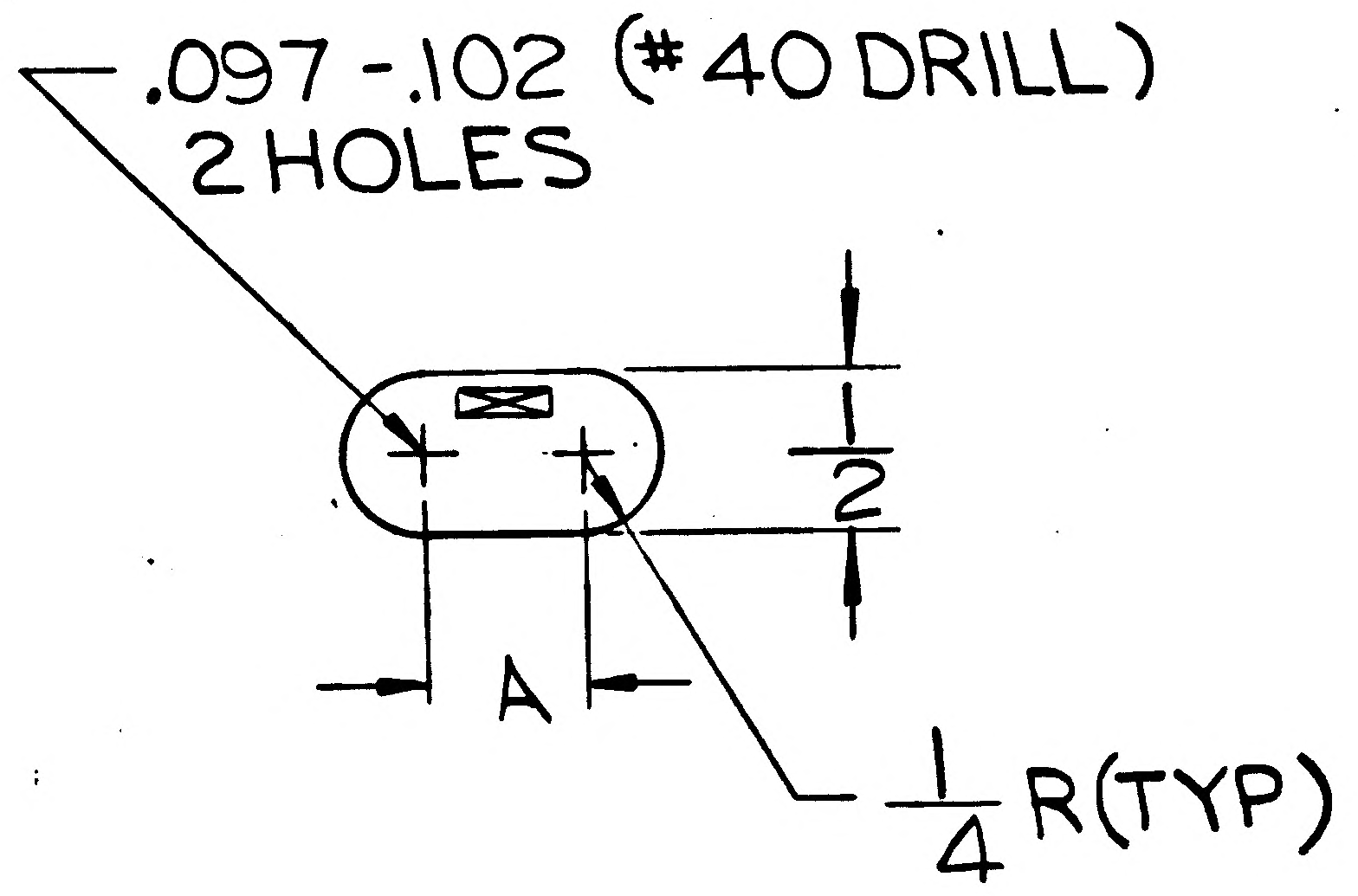
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18090
B
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



PART NO.	"A" DIM
LDW280-18090-11	1/2
-13	9/16
-15	11/16

B3

B6

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓	FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.		EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.		ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.			
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING		REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
		SYMBOL √ DENOTES SURFACE TO BE MACHINED	
		TOLERANCE ON FLANGES IS ± 1/32	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.		LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10			
200√ FOR ALL DRILLED HOLES			
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS			

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18090	B
SCALE FULL		SHEET 3.00	

ENG 73.11 12-64

01

NAS 9-1100

H.6.

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18090		EO NO. B1
CONTROL INFO NO. LM-2-2846		

IN B/M:

FOR-13 ~ REMOVE LTA-3(13) LM-2(32) THRU LM-6(36) EFFECTIVITY.

FOR-11 ~ (8) REQ'D/MODULE FOR LTA-3, LM-2 THRU LM-6 EFF., WAS (6) REQ'D/MODULE.

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: PILOT HOLES ON -13 DO NOT MATCH CORRESPONDING HOLES IN WEB

DESCRIPTION OF EO: IN B/M: FOR-13 REMOVED LTA-3(13), LM-2(32) THRU LM-6(36) EFF. FOR-11, (8) REQ'D PER MOD. FOR LTA-3(13), LM-2(32) THRU LM-6(36) WAS (6)

(E) GAEC C EO RELEASE: VG

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13) LM-2 (32)	
LM		THRU	
LM		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP -13

APPROVED BY					caw	caw	RMC VR	
DATE	10/8				9-29-66	9-29-66	10-3-66	9-30-66
9.29.66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE DESCENT STAGE ~ SCIENTIFIC EQUIPMENT BAY ~ SPACER	LDW280-18090	B1

ISSUED BY LIAISON/E. NEFF X3604 SECTION V.D.I. GROUP NO. 335 PL 35 EMF

01

NAS 9-1100

A *

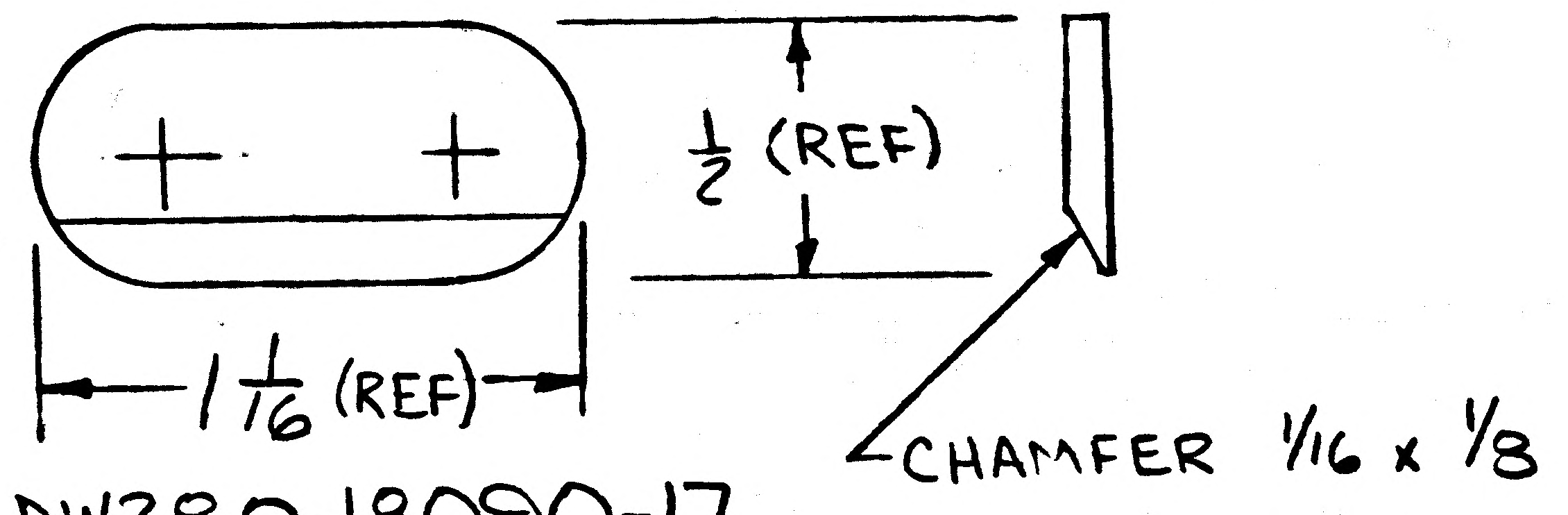
ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18090		EO NO. B3
CONTROL INFO NO. LDW280A5782		

FOR -13 REMOVE LM-3(33) THRU LM-15(45)
ADD -17 IDENTICAL TO -13 EXCEPT AS NOTED. -17 IS EFFECTIVE
FOR LM-3(33) THRU LM-15(45)



LDW280-18090-17

REWORK INFO: -17 MAY BE MADE BY REWORKING -13

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD19-1197 5

REASON FOR EO
CLEARANCE REQ'D FOR SEQ CONTAINERS (LCD19-1197

DESCRIPTION OF EO
FOR -13 REMOVED LM-3(33) THRU LM-15(45) REQMTS ADDED -17

GAEC EO RELEASE C
JS 3-30-7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-3(33)	THRU LM-	15(45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
				DATE	3/23/67			3/27/67	3/27/67	3/28/67	3/29/67
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE-DESCENT STAGE-SEQ BAY SPACER	LDW280-18090	B3

ISSUED BY A.F. MARZELLA EXT 1153 SECTION VEHICLE DESIGN & INT GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 22.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 547
CONTROL INFO NO. LDW280A-6136

FOR ALL DASH NO.* ON THE FOLLOWING DWGS WHICH HAVE LM-6 EFF ADD LTA-3D|R EFF QTY & N|A TO REMAIN THE SAME AS ON LM-6

DRAWING *	TITLE	CHANGE NO.
LDW280-17737 ✓	SEE DWG	B2
-17792 ✓		B5
-17797 ✓		A2
-17830 ✓		B1
-17841 ✓		A8
-17842 ✓		B1
-17843 ✓		A2
-17844 ✓		A2
-17845 ✓		A2
-17846 ✓		A2
-17850 ✓		B2
-17856 ✓		A2
-17874 ✓		B2
-17882 ✓		B1
-17883 ✓		B3
-17884 ✓		B2
-17885 ✓		B3
-17886 ✓		C4
-17887 ✓		B2
-17891 ✓		A3
-17906 ✓		B1
-17943 ✓		B2
-17948 ✓		B1
-17958 ✓		B2
-17969 ✓		B2
-17973 ✓		A3
-17977 ✓		B1
-17981 ✓		B1
-18064 ✓		B1
-18065 ✓		C1
-18066 ✓		A2
-18067 ✓		A3
-18068 ✓		A2
-18089 ✓		B2
-18090 ✓		B4
-18137		B2
-18195		C2
LDW280 -18202		B2
LDW280P 18133		A2
LDW 280-54684		A2
LDW 330-52056		B3
	SEE DWG.	

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LC019-1242	2

REASON FOR EO: FAILURE OF LTA-3D IN STATIC TEST

DESCRIPTION OF EO: IN M/B FOR * ADDED LTA-3DR EFF

GAEC EO RELEASE: C JK 4/4/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R (96)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP RLQD

APPROVED BY: JAP
DATE: 3/28/67
5 | YDI

SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
		JRS 3/28/67	WJH 3/3/67		ONIC 3.30.67	4/1/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 547

ISSUED BY G. BARNES/J. STRAKOSCH X1153 SECTION YDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-18090 | EO NO. B5
CONTROL INFO NO. LDW280A6380

ON LDW280-18090-11, -15 & -17
REMOVE LM-3(33) THRU LM-15(45) REQMT'S.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD19-1197 2

REASON FOR EO: MORE CLEARANCE REQ'D WITH CONTAINERS LCD# 1197

DESCRIPTION OF EO: FOR -11, -15 & -17 REMOVED LM-3(33) THRU LM-15(45) REQMT'S.

GAEC EO RELEASE: C — JK 4/29/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-3 (33)	THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY							Dam	
DATE	4/18/67			4/18/67	4/20/67		4/25/67	9.28.67
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE- DESCENT STAGE- SEQ BAY - SPACER	LDW280-18090	B5

ISSUED BY MARZELLA SECTION VEHICLE DESIGN GROUP NO. 335 PL 25

01 NAS 9-1100

P3

GC 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18090 | EO NO. B6
CONTROL INFO NO. LM-2-3607

THIS IS A REVISION OF EO B5.

FOR -11, -15, -17

ADD TO EO B5:

REMOVE LTA3-D/R (46) REQMT'S.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADD'L CLEARANCE REQ'D WITH CONTAINERS	REF EO B5: DELETED LTA-3 D/R REQM'TS FROM -11, -15, -17	C EN 0231

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R (46)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JaP			~	MRS	CtJ	WRB	
DATE	7/6/67			~	5/31/67	5/31/67	7/6/67	6/2/67
5	VOI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C2	PLATE - DESCENT STAGE SCIENTIFIC EQUIP. BAY - SPACER	LDW280-18090	B6

ISSUED BY LIAISON G. MARTELL x3604 SECTION VEH DES INT GROUP NO. 835 PL 25

01 NAS 9-1100

LDW280-18092

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23700	LEM-6(36)	2
		LEM-5(35)	2
		LEM-4(34)	2
		LEM-3(33)	2
	LDW280-23700	LEM-2(32)	2
	LDW280-25700	LEM-1(31)	2
	LDW280-25700	LTA-8(18)	2
LEM	LDW280-25700	LTA-5(15)	2

PART NO. LDW280-18092-11 & -13 | GAEC SCH NO. 50-1

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00	
REV						
SHEET						
REV						
SHEET						
REV						

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO

PRIM NO. VE(001)

207 MP-8-5-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100

LINE ITEM I

DOCUMENTATION TYPE II

DRAWN BY	M. GREY 7-26-66	RELIAB.
LAYOUT BY	M. GREY 7-26-66	
CHECKED BY		
GR LEADER	J. Strebeconli 8/2/66	
VEH DES INT	for W. Bischoff 8/2	
STRUCTURE		PROJ ENGR R.M. Carbee 8-11
STRUCTURE	Alderman 8-3	REL GROUP Bott 8-12-66
WEIGHTS	8-6	

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-METEROID
PROTECTION -SPLICE

SIZE B | CODE IDENT NO. 26512 | LDW280-18092

SCALE NONE | SHEET 1 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18092-13	E	ZEE	AL SHEET BARE	QQ-A-355	2024 T3	.010 x 28 x 9	NONE	88	
								LDW280-18092-11	E	WEB	AL SHEET BARE	QQ-A-355	2024T3	.010 x 28 x 9	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

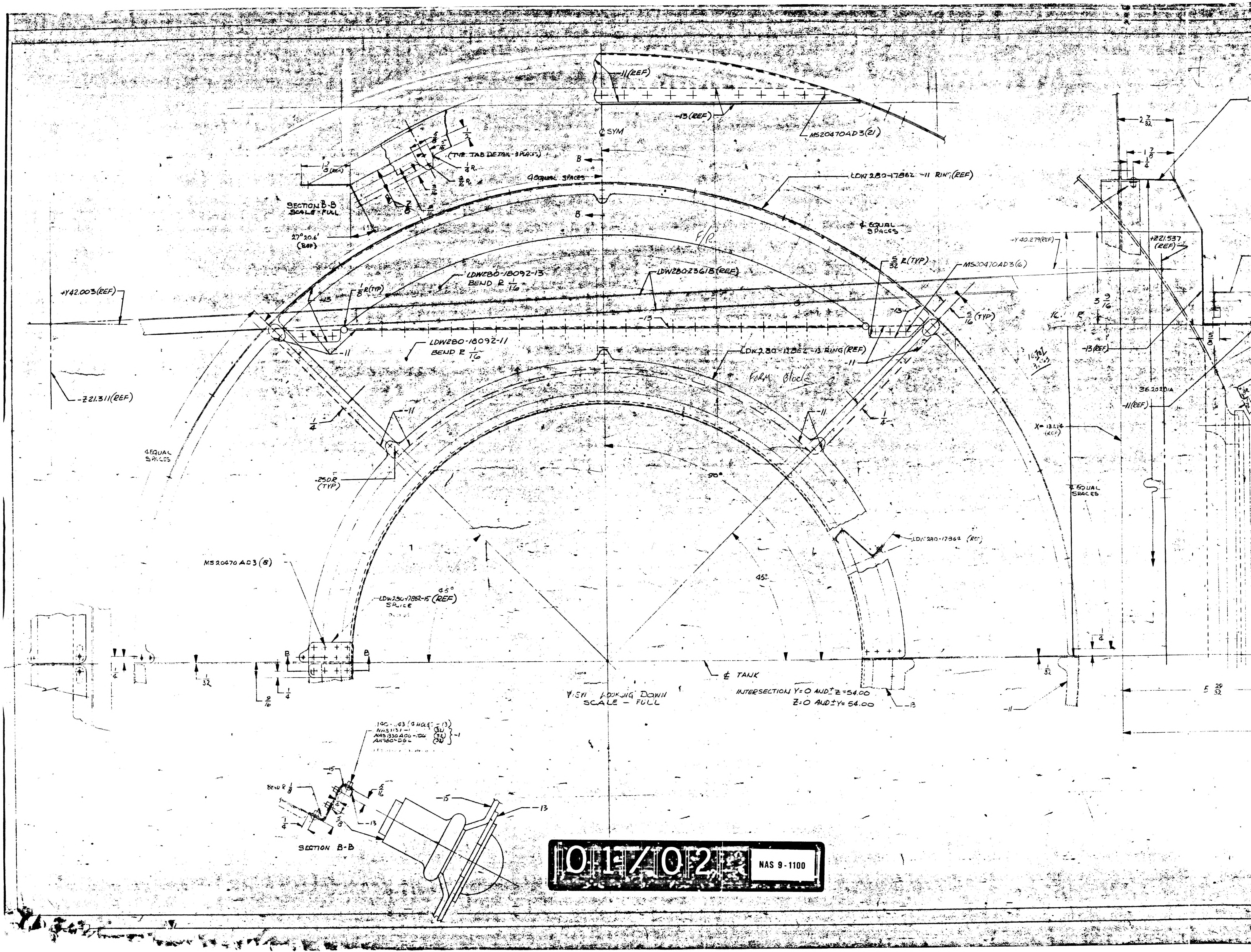
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18092
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

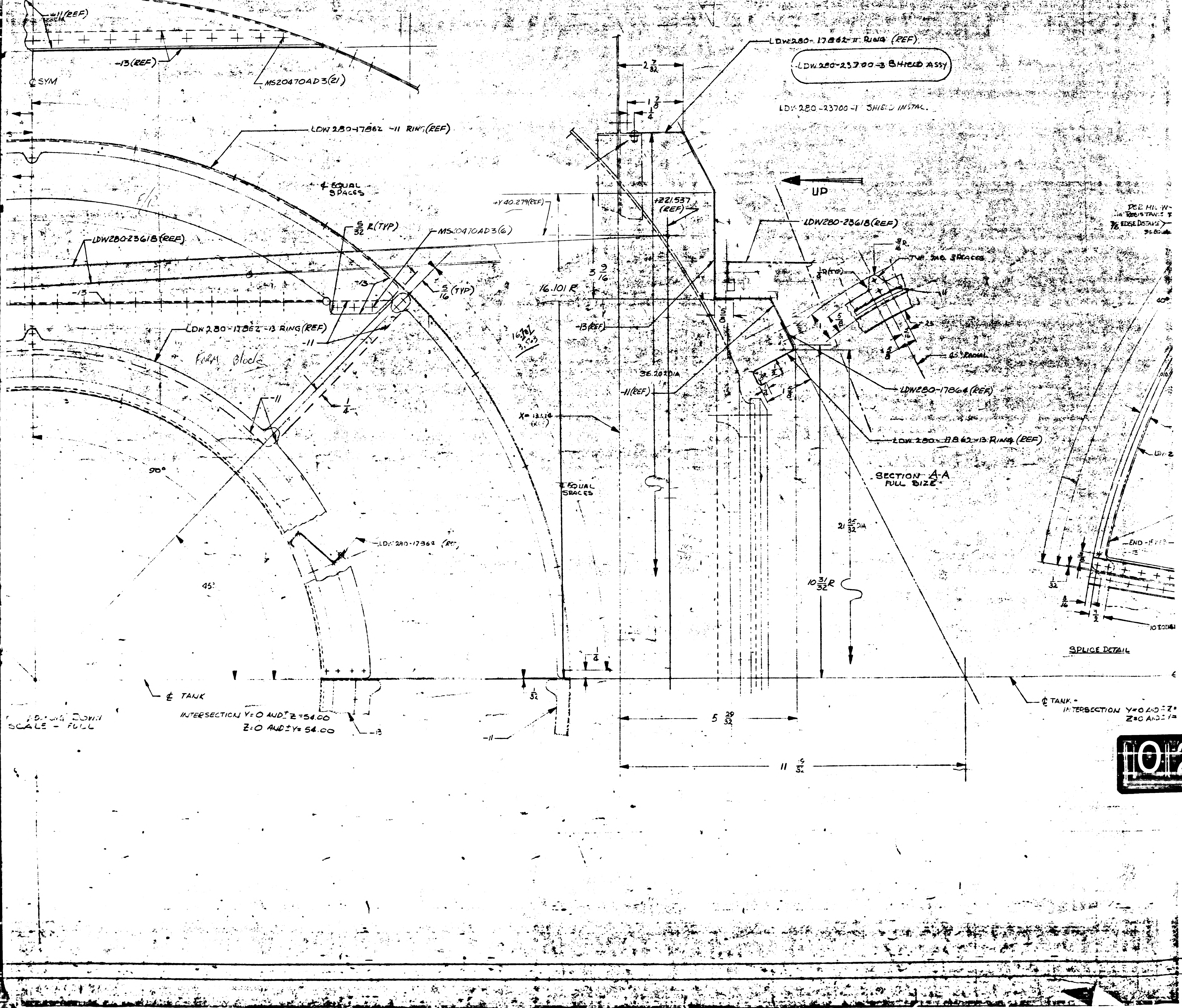
01

NAS 9-1100


-11(REF)
-13(REF)
MS20470AD3(21)
℄ SYM
(TYP TAB DETAIL-3 PLACES)
1 7/8 (REF)
5/8
5/16
1/2
1/4 R.
3/16 R.
3/16
2/8
3/16
SECTION B-B
SCALE-FULL
27° 20.6' (REF)
B
4 EQUAL SPACES
B
LDW280-47862-11 RING(REF)
4 EQUAL SPACES
F/R
+Y42.003(REF)
LDW280-18092-13
BEND R 1/16
1/8 R(TYP)
-13
LDW280-23618(REF)
5/32 R(TYP)
MS20470AD3(6)
-13
5/16 (TYP)
-13
-11
LDW280-18092-11
BEND R 1/16
LDW280-17862-13 RING(REF)
-11
FORM Block
-Z21.311(REF)
1/4
-11
-11
1/4
4 EQUAL SPACES
.250R (TYP)
90°
LDW280-17862 (REF)
1
45°
MS20470AD3(8)
45°
LDW280-17862-15 (REF)
SPLICE
B
B
1/32
1/4
9/16
℄ TANK
VIEW LOOKING DOWN
SCALE - FULL
INTERSECTION Y=0 AND ± Z=54.00
Z=0 AND ± Y=54.00
-13
-11
.190-.43 (4 HOLES -13)
NAS1131-1 (32)
NAS1330A06-106 (32)
AN960-D6L (32)
-1
-15
BEND R 1/8
5/16
1/4
1/4
5/8
-13
-15
-13
SECTION B-B
2 7/32
1 7/8
1/4
+Y40.279(REF)
+Z21.537 (REF)
3 9/16
16. R
5/8
-13(REF)
36.202 DIA
-11(REF)
X=131.14 (REF)
4 EQUAL SPACES
1/4
1/32
5 29/32
-11

01/02

NAS 9-1100


-11(REF)
-13(REF)
MS20470AD3(21)
℄ SYM
LDW280-17862-11 RING (REF)
LDW280-23700-3 SHIELD ASSY
LDW280-23700-1 SHIELD INSTAL.
LDW280-17862-11 RING(REF)
2 7/32
1 7/8
1/4
UP
℄ EQUAL 8 SPACES
+Y 40.279(REF)
+Z21.537 (REF)
5/32 R(TYP)
MS20470AD3(6)
LDW280-23618(REF)
LDW280-23618 (REF)
-13
5/16 (TYP)
3 9/16
16.101 R
-13
-13(REF)
LDW280-17862-13 RING (REF)
-11
FORM Block
36.202 DIA
-11(REF)
1/4
-11
X=13.576
LDW280-17864 (REF)
LDW280-17862-13 RING (REF)
SECTION A-A FULL SIZE
90°
℄ EQUAL SPACES
45°
LDW280-17862 (REF)
21 25/32 DIA
10 31/32 R
1/4
1/32
℄ TANK
INTERSECTION Y=0 AND +Z=54.00
Z=0 AND +Y=54.00
-13
-11
LOOKING DOWN
SCALE - FULL
5 29/32
11 9/32
℄ TANK
INTERSECTION Y=0 AND Z=
Z=0 AND Y=
SPLICE DETAIL
END
1/32
1/16
1/2
TYP. 3 SPACES
.05 RADIAL
3/8 EDGE DISTANCE

02/02

NAS 9-1100

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ▭
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125 SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL ✓ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)=
1/2 SIZE SHEET AREA (1/4 OF FULL)=

PRINT TRIM LINE

LDW280-18092

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO		
J	26512	LDW280-18092	
LEM			
MODEL OR END ITEM	SCALE FULL		SHEET 2

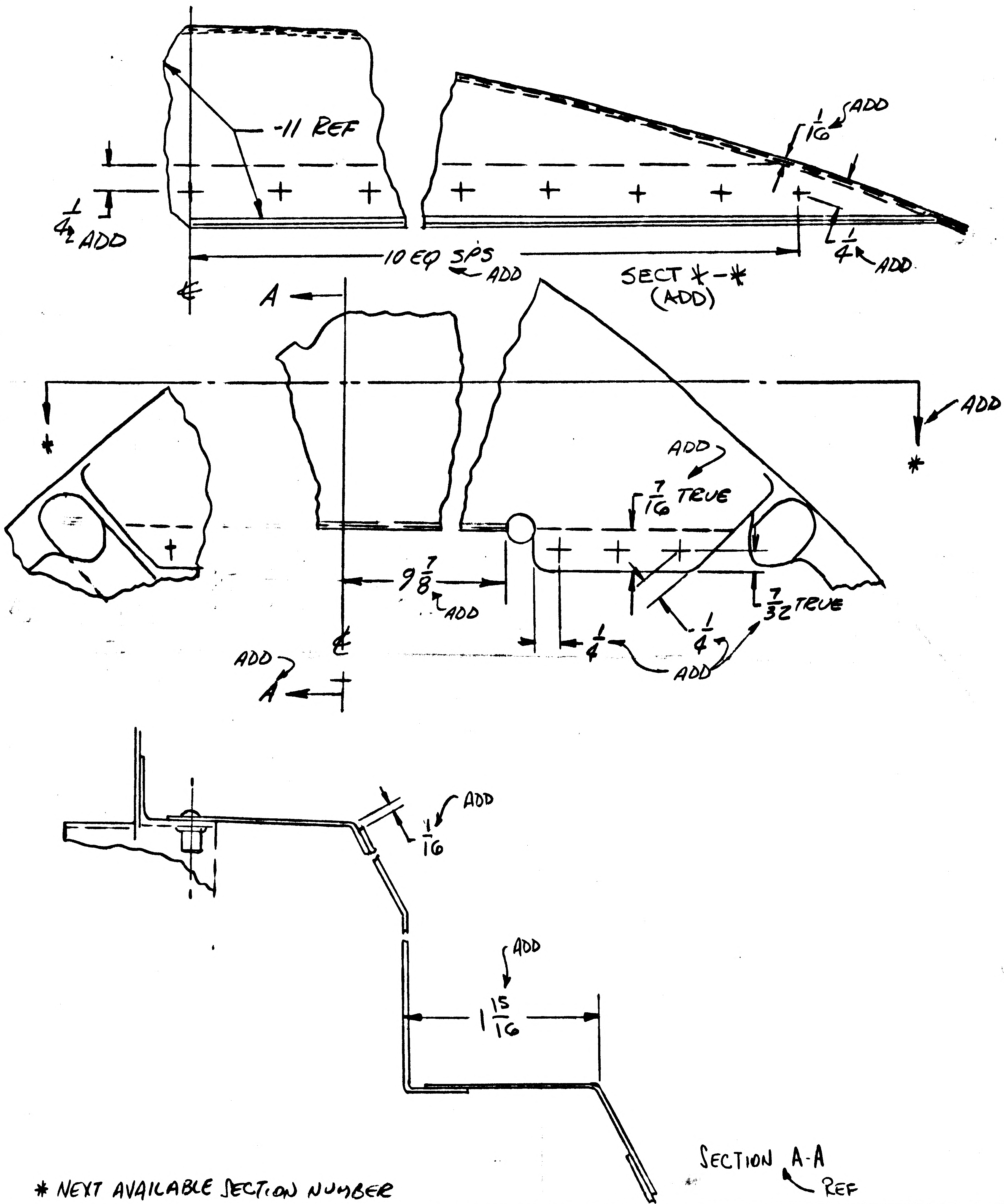
A.G.

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18092		EO NO. A1
CONTROL INFO NO. LEM-2-2608		

ON B/M-11&-13, "2024-0" WAS "2024-T3", "T.42" WAS "NONE" (IN PROCESS SYM)
IN PROCESS OR FINISH BLOCK ADD HEAT TREAT PER MIL-H-6088



-11 REF
1/16 ADD
1/4 ADD
1/4 ADD
10 EQ SPS ADD
SECT *-* (ADD)
℄
A
ADD
*
ADD
7/16 TRUE
9 7/8 ADD
7/32 TRUE
1/4
1/4
ADD
ADD
A
1/16 ADD
ADD
1 15/16
SECTION A-A
REF

* NEXT AVAILABLE SECTION NUMBER

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		~~HEAT TREAT PER MIL-H-6088 IN PROCESS BLOCK.~~ 2

REASON FOR EO
DIMS NECESSARY FOR MANFG WERE OMITTED FROM DRAWING.

DESCRIPTION OF EO
ON -11&-13 ADDED FOLLOWING DIMS TO DWG; 1/16, ; 10 EQ SPS, 9 7/8, 7/16 TRUE, 7/32 TRUE, 1/16, 1 15/16, AND SECTION * * 1/4 4 PLCS ADDED
~~2024-0 WAS 2024-T3, T42 WAS NONE IN B/M.~~

GAEC C EO RELEASE: FR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM 1 (31) THRU	
		LEM 6 (36) LTA 8 (18)	
		LTA-5 (15)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	[illegible]	[illegible]				caw	caw	RMC	[illegible]
DATE	8-22	9/1				8/16/66	8/16/66	8-18	[illegible]
8-16-66	WTS	~~SUPPORT~~ VDF	RELIAB. GROUP	GROUP LEADER		STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C2	WEB DESCENT STAGE-METEROID PROTECTION-SPLICE	LDW280-18092	A1

ISSUED BY LIAISON J. PICCIOTTI X1069 SECTION VDI GROUP NO. 280 PL 35

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NAS 9-1100

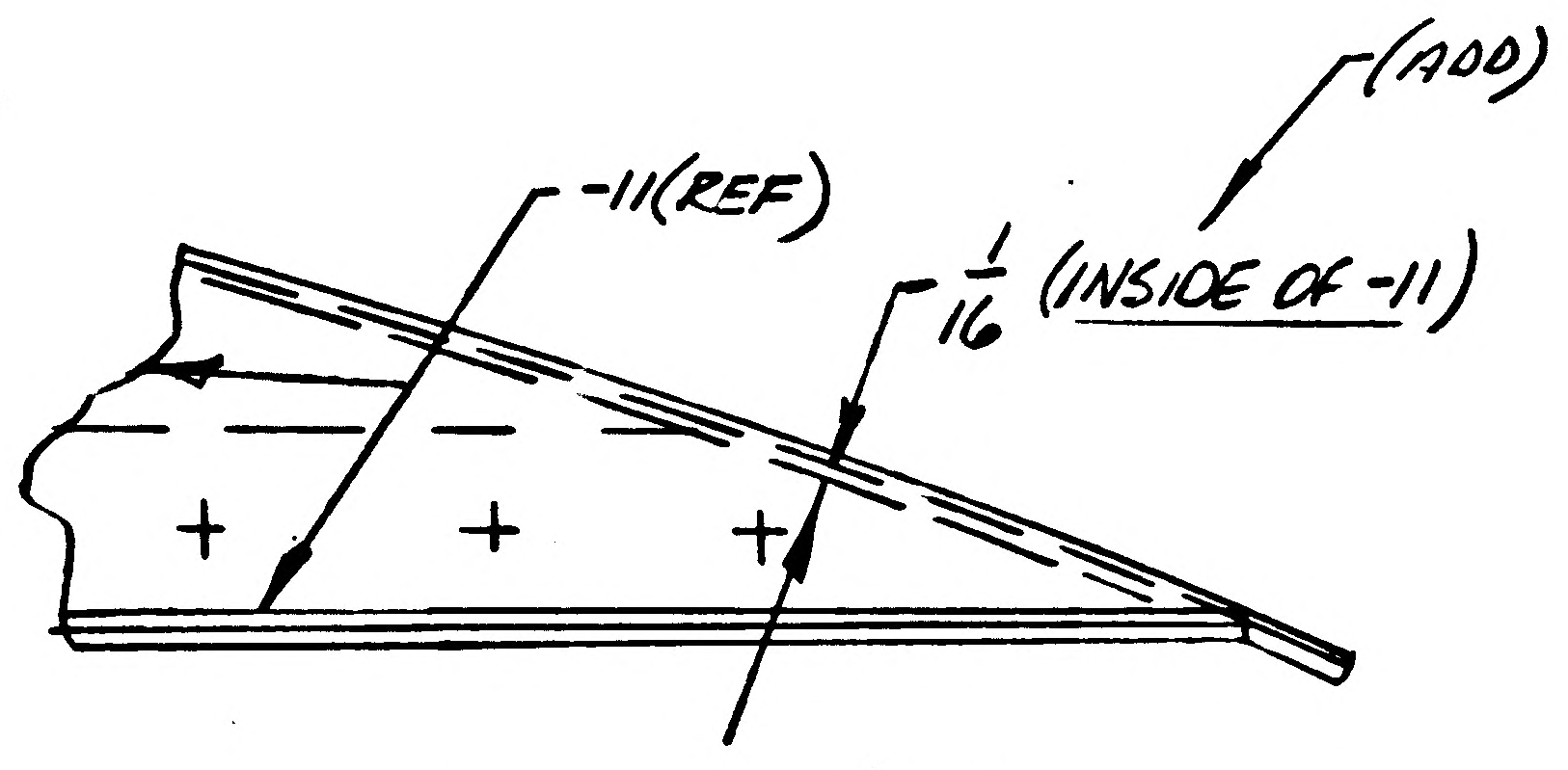
HG *

ENG 32.1 REV 3-65

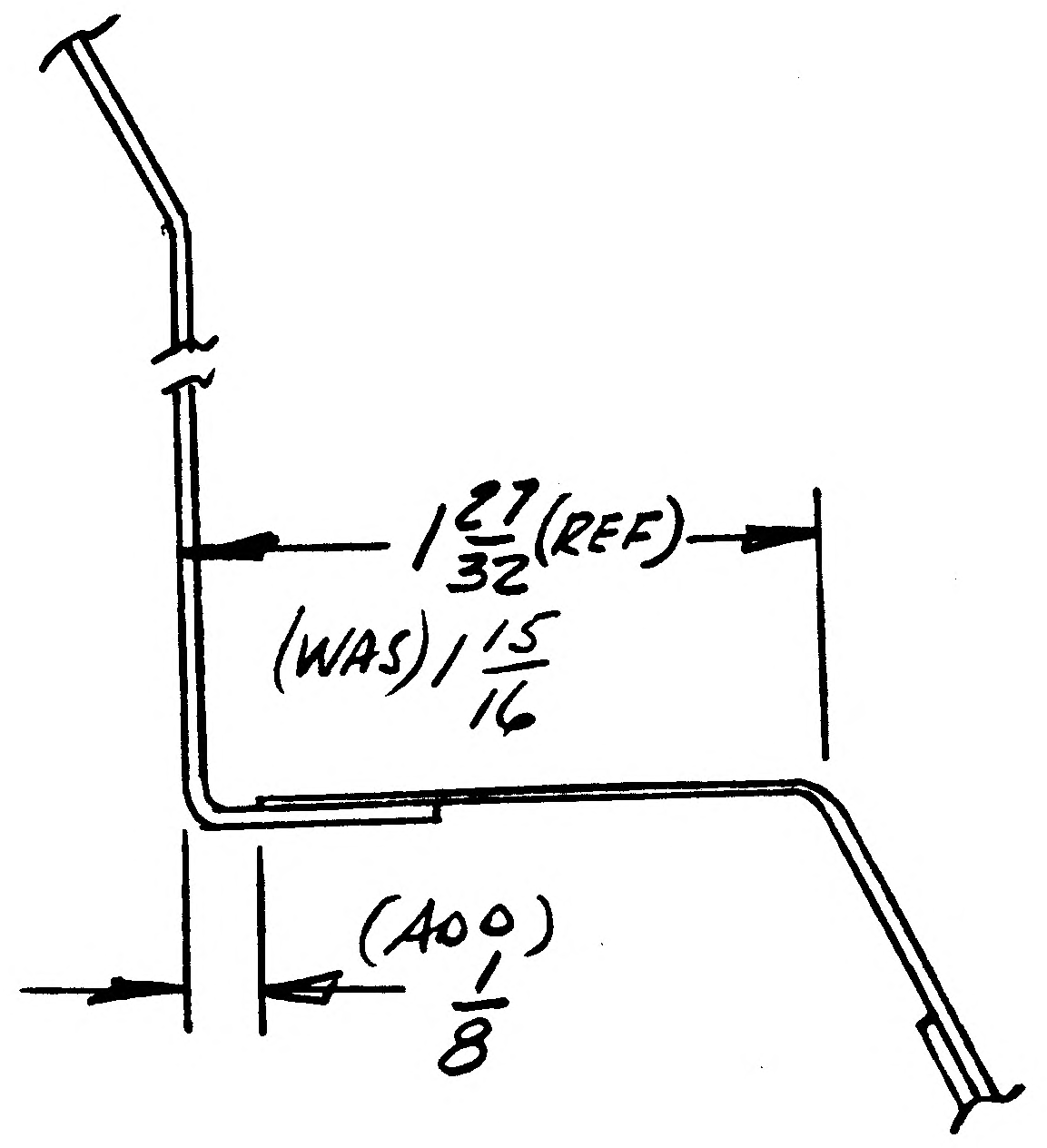
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18092		EO NO. A3
CONTROL INFO NO. LEM-2-2738		

THIS IS A REVISION OF EO A1



SECTION **(REF)



SECTION A-A

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: DIMENSIONS REQ'D TO MANUFACTURE PART.

REF EO A1 — DESCRIPTION OF EO: IN SECTION *-* ADDED (INSIDE OF -11) TO 1/16 DIM. IN SECTION A-A 1 27/32 (REF) WAS 1 15/16, ADDED 1/8 DIM.

GAEC C EO RELEASE: ✓

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA5(15)	
		LTA8 (18)	
		LEM11-6(31-36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JAS				CBW	CBW	EMB	
DATE	9/8/66	10-4			9-9-66	9-9-66	9-10-66	9/9/66
9-8-66	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C_2	WEB-DESCENT STAGE-METEROID PROTECTION-SPLICE	LDW280-18092	A3

ISSUED BY LIAISON: G. MARTELL x3604 SECTION VEH DES INT GROUP NO. 335 PL 35 EHF

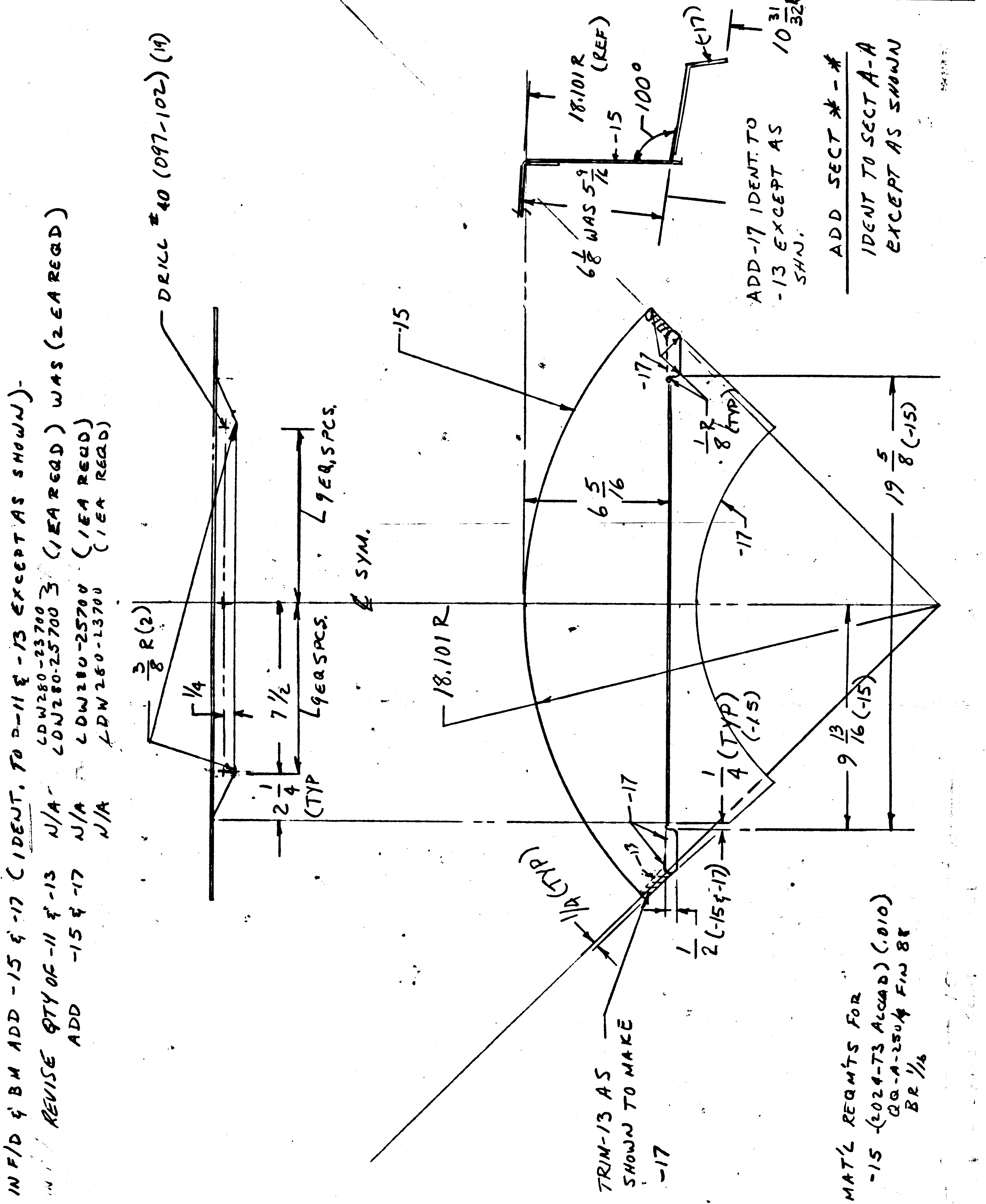
01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18092
EO NO. A4
CONTROL INFO NO. LDW280-A-0500



18.101R (REF)
-15
100°
(-17)
10 31/32 R
6 1/8 WAS 5 9/16
-15
-17
1/8 R (TYP)
6 5/16
19 5/8 (-15)
18.101R
-17
1/4 (TYP) (-15)
9 13/16 (-15)
-17
-13
1/2 (-15 & -17)
1/4 (TYP)
3/8 R (2)
1/4
7 1/2
2 1/4 (TYP)
4 EQ SPCS.
4 EQ. SPCS.
℄ SYM.
DRILL #40 (.097-.102) (19)

IN F/D & BM ADD -15 & -17 (IDENT. TO -11 & -13 EXCEPT AS SHOWN)-
REVISE QTY OF -11 & -13 N/A LDW280-23700 (1EA REQD) WAS (2EA REQD)
LDW280-25700
ADD -15 & -17 N/A LDW280-25700 (1EA REQD)
N/A LDW280-23700 (1EA REQD)

ADD-17 IDENT. TO -13 EXCEPT AS SHN.

ADD SECT *-*
IDENT TO SECT A-A EXCEPT AS SHOWN

TRIM-13 AS SHOWN TO MAKE -17

MAT'L REQM'TS FOR -15 (2024-T3 ALCLAD) (.010) QQ-A-250/4 FIN 8E BR 1/16

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG

REASON FOR EO: INTERFERENCE WITH PROPELLANT STRUCTURE.

DESCRIPTION OF EO: ADDED -15 & -17. REVISED QTY OF -11 & -13 (1REQD) WAS 2 REQD FOR LDW280-25700

GAEC C EO RELEASE: CE 9-21

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA 8, (18)	
LEM		LEM 1 THRU 6	(31 THRU 36)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	JWS	LBY			FED		PM (WF)	Bott
DATE	9/17/66	9/26/66			9/17		9-17-66	9-17-66
	VDI	~~SUPPORT~~ WTS	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: SKIN. D/S METROID SHIELD TANK COVER
DRAWING NO.: LDW280-18092
EO NO.: A4

ISSUED BY RAGAS X6454 SECTION UDI GROUP NO. 335 PL 5 EMF

NAS 9-1100

01

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18092
EO NO. B1
CONTROL INFO NO. LM 5- :32

IN M/B: REVISE QTY OF -15 & -17:

N/A LDW280-25700 (5 REQD) WAS LDW280-25700 (1 REQD)
LDW280-23700 (5 REQD) LDW280-23700 (1 REQD)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		5

REASON FOR EO: ADDITIONAL SKINS NEEDED DUE TO INTERFERENCE WITH LANDING GEAR.

DESCRIPTION OF EO: REVISED QTY FOR -15 & -17 (5 REQD) FOR LDW280-25700 & LDW280-23700, WAS (1 REQD).

GAEC EO RELEASE: VE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	
LM		LM 1 THRU LM 6	(31 THRU 36)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
/		/	

APPROVED BY					ES		RMC (E)	
DATE	[illegible]				9/9	9-30-66	10-8	10-1-66
9-29-66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

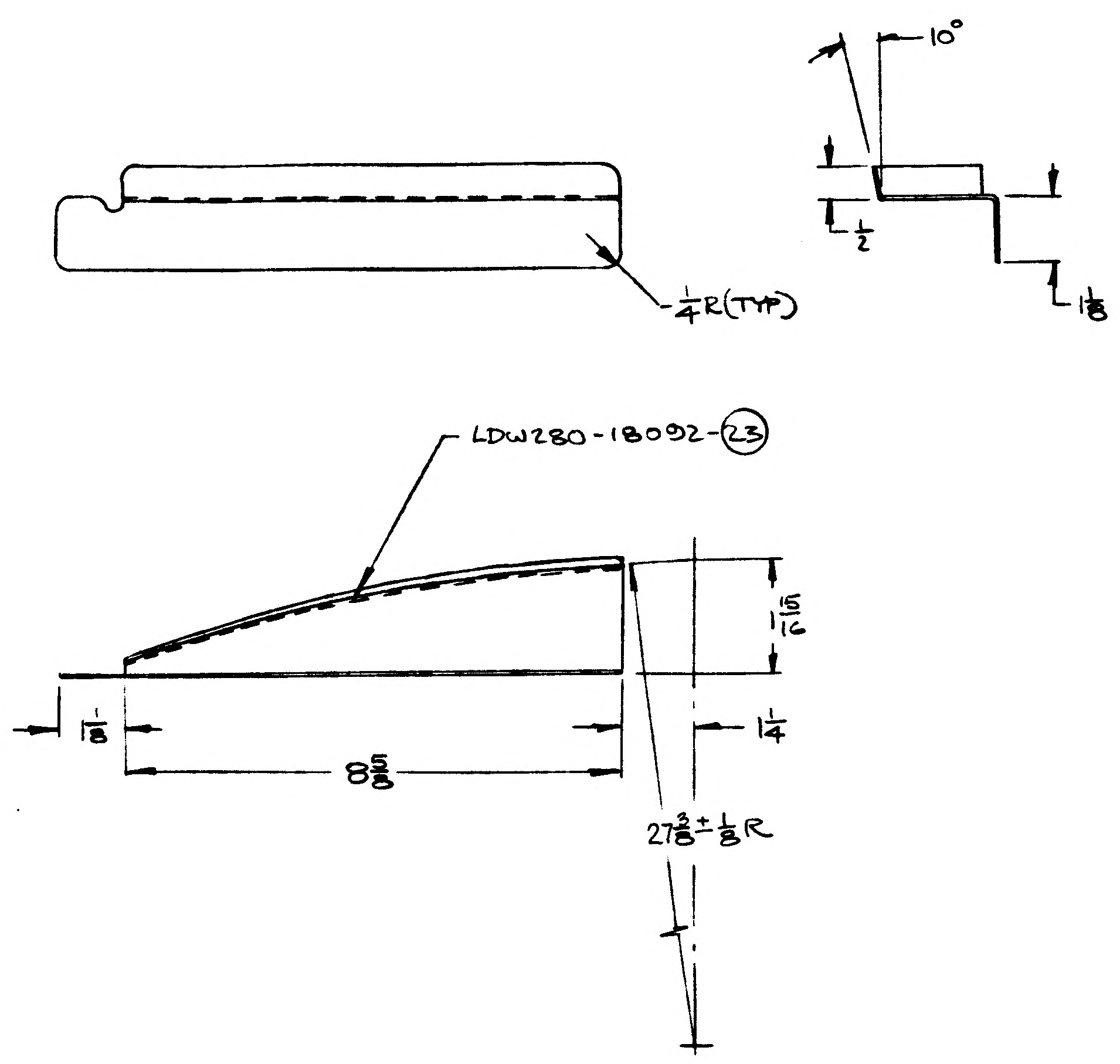
DRAWING TITLE: SKIN D/S METEROID SHIELD TANK COVERS

DRAWING NO.: LDW280-18092

EO NO.: B1

ISSUED BY D. RAGAS X6454 SECTION VDI GROUP NO. 335 PL 5

EMF

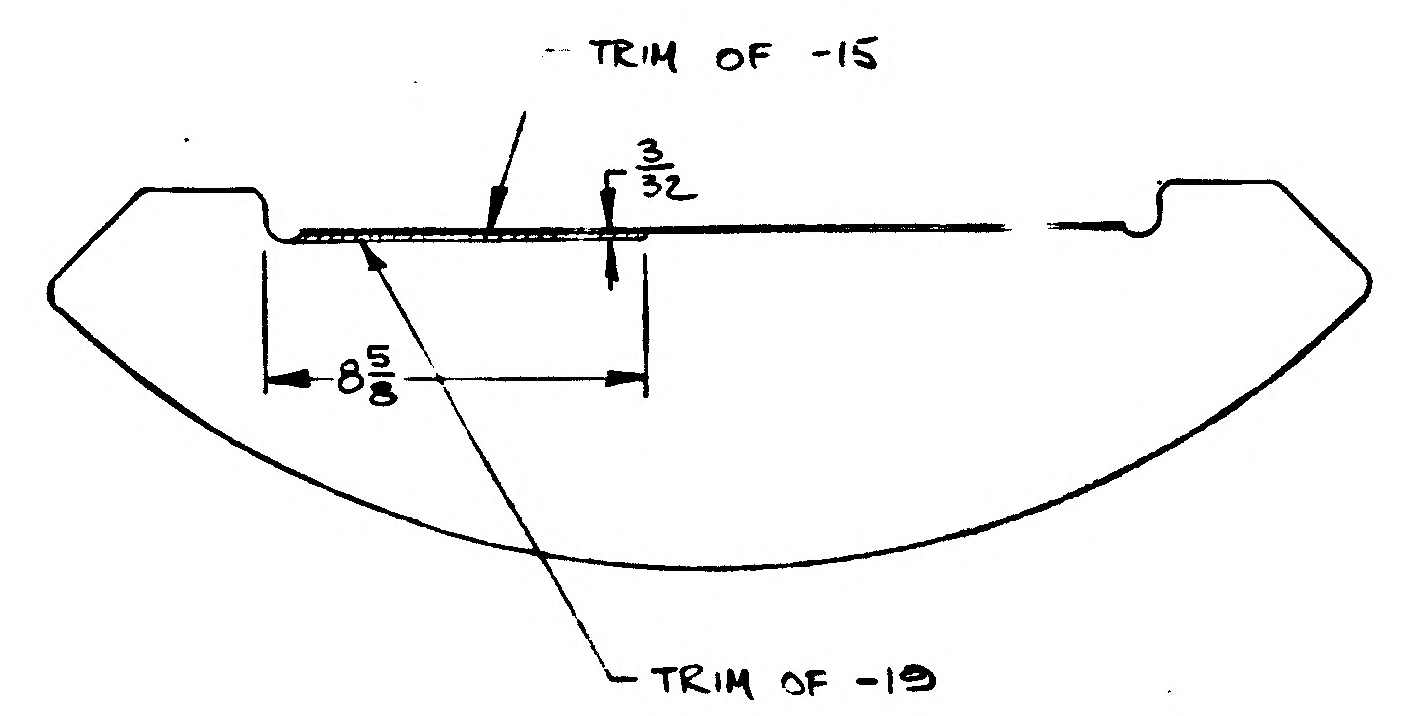


ADD LDW280-18092-23 ZEE
-.010 AL ALY SH
2024 QQ-A-250/4
HT TO T42
FIN 76 BEND R 1/16
N/A LDW 280-23700
EFF LM-2(32), LM-3(33)
I & T = E 1REQD/MOD

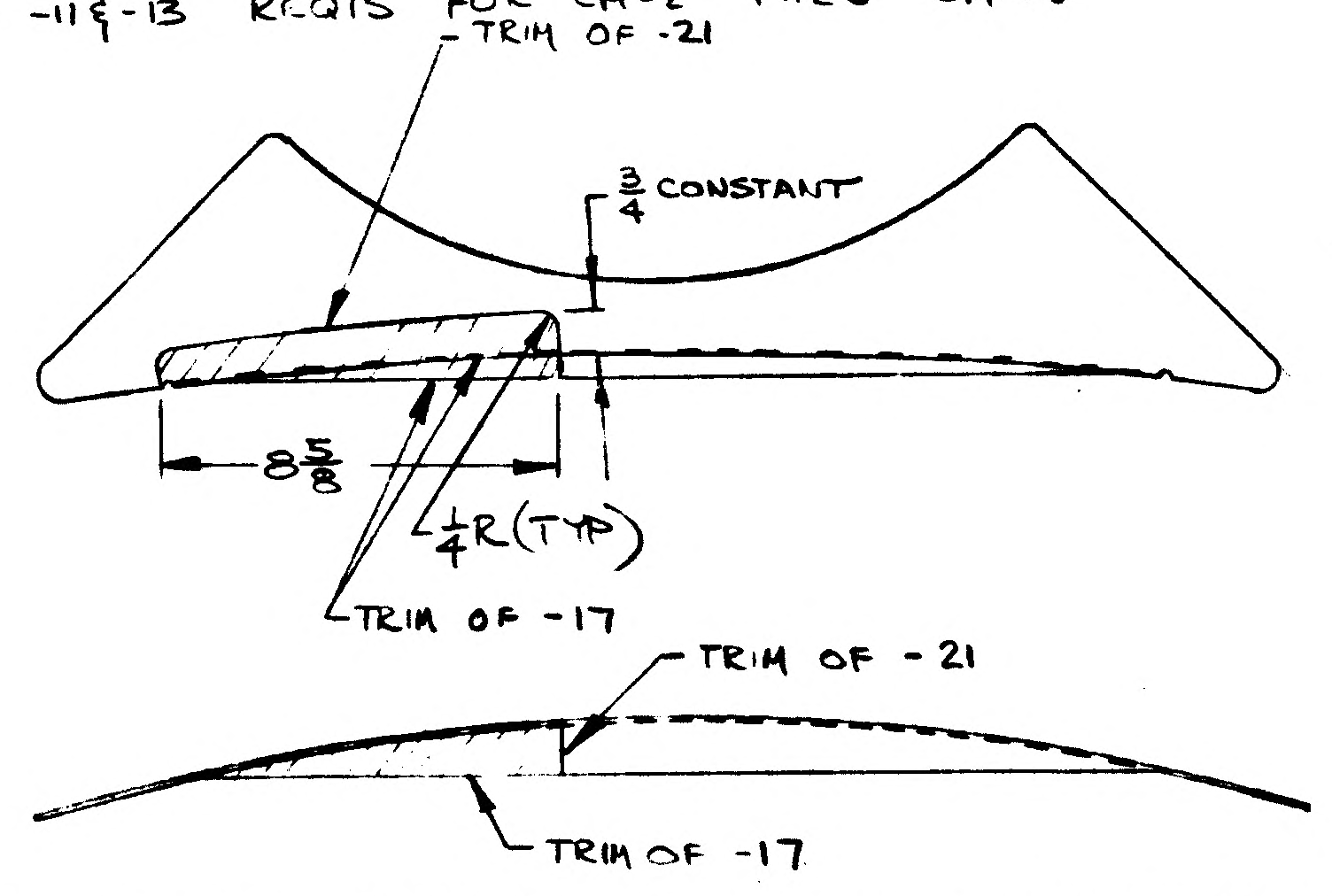
GMD 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18092
EO NO. B3
CONTROL INFO NO. LDW280A3713



ADD LDW280-18092-19 IDENT TO LDW280-18092-15 EXCEPT
AS SHOWN ABOVE
N/A -19 LDW280-23700 1/MOD LM-2 & LM-3
N/A -15 LDW280-23700 5/MOD WAS 1/MOD
FOR LM-2 & LM-3
REMOVE -15 & -17 REQTS FOR LM-4 THRU LM-15
REMOVE -11 & -13 REQTS FOR LM-2 THRU LM-15



ADD LDW280-18092-21 IDENT TO LDW280-18092-17 EXCEPT
AS SHOWN ABOVE
N/A -21 LDW280-23700 1/MOD LM-2 & LM-3
N/A -17 LDW280-23700 5/MOD WAS 1/MOD
-15 & -17 MAY BE REWORKED INTO -19 & -21 RESPECT BY TRIMMING
AS SHOWN

2

DETAIL SPEC REQD	CL II ENGRG CHG	CL I ENGRG CHG

REASON FOR EO: INTERFERENCE WITH PROP LINE STRUCTURE

DESCRIPTION OF EO: ADDED -19, -21 & -23, REMOVED REQTS FOR -15 & -17 FOR LM-4 THRU LM-15, REMOVED REQTS FOR -11 & -13 FOR LM-2 THRU LM-15; -15 & -17 QTY WAS 1/MOD

GAEC EO RELEASE: 12/1

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
✓		✓	✓	12/5/66	VDI						

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S METEOROID SKIN SHIELD TANK COVER	LDW280-18092	B3

ISSUED BY G. BARNES / J. STRAKOSCH X1392 SECTION VDI GROUP NO. 335 PL 35

NAS 9-1100

LDW280-18093 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23615	LEM-6(36)	2 EA
LEM	LDW280-23615	LEM-5(35)	2 EA
		LEM-4(34)	
		LEM-3(33)	
		LEM-2(32)	
		LEM-1(31)	
		LTA-8(18)	
		LTA-5(15)	
LEM	LDW280-23615	LTA-3(13)	2 EA
PART NO. LDW280-18093-15 &-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23612	LEM-6(36)	2 EA
		LEM-5(35)	
		LEM-4(34)	
		LEM-3(33)	
		LEM-2(32)	
		LEM-1(31)	
		LTA-8(18)	
		LTA-5(15)	
LEM	LDW280-23612	LTA-3(13)	2 EA
PART NO. LDW280-18093-11 &-13		GAEC SCH NO. 503	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO

PRIM NO. VE601 WPA 9-6-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE
DRAWN BY P.MONACO 8-18-66
LAYOUT BY G HANSMANN
CHECKED BY A RODALEWICZ 8/19/66
~~GP LEADER~~
VEH DES INT 9/1/66
STRUCTURES
STRUCTURES
WEIGHTS A Kolasch 9.12
PROJ ENGR R.M. Carbee (EW) 9-15
REL GROUP Bott 9-15-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE, PROP LINES
LOWER DECK TRUSS

SIZE B
CODE IDENT NO. 26512
LDW280-18093 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1							EO A1 ®	EO A1 INITIAL DRAWING RELEASE, PARTS MADE PER E O ® E/R HR	NOTED	NOT	REQD	P MONACO 8-18-66		

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS						
	A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18093	A
SCALE NONE		SHEET 1.10	

ENG 77.18 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18093-17	E	DOUBLER	AL. ALLOY SH	QQ-A-250/12	7075-T6	.024X1 7/8 X 2 1/8	NONE	88	
								-15	↕	↕	↕	↕	↕	.024X1 1/2 X 2 1/8	↕	↕	
								-13	↕	↕	↕	↕	↕	.024X1 1/2 2	↕	↕	
								LDW280-18093-11	E	DOUBLER	AL. ALLOY SH	QQ-A-250/12	7075 - T6	.024X 1 1/2 X 2	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030						

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18093	A

SCALE NONE

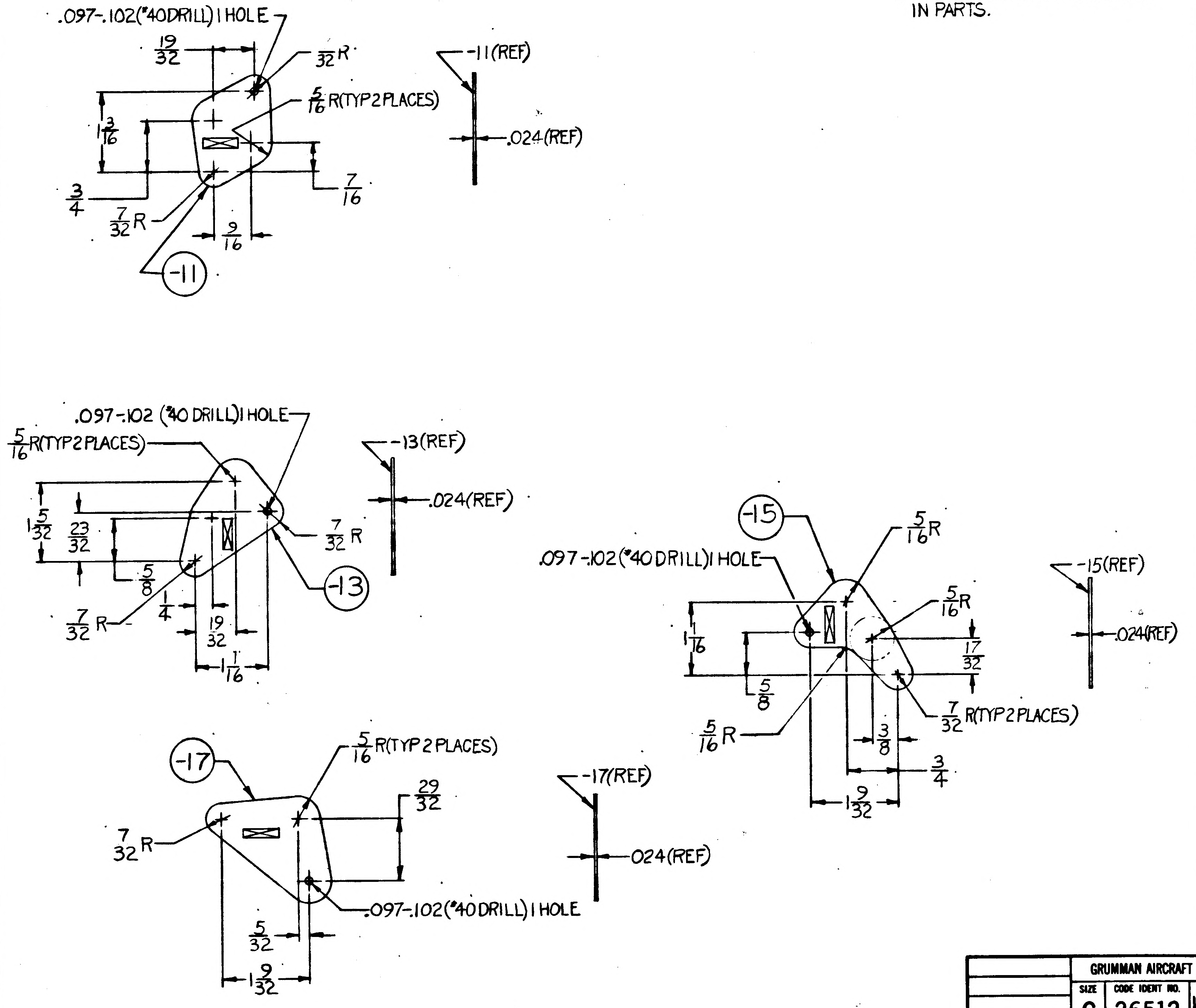
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



.097-.102 (#40 DRILL) 1 HOLE
19/32
3/32 R
5/16 R (TYP 2 PLACES)
1 3/16
3/4
7/32 R
9/16
7/16
-11
-11 (REF)
.024 (REF)
.097-.102 (#40 DRILL) 1 HOLE
5/16 R (TYP 2 PLACES)
1 5/32
23/32
5/8
1/4
7/32 R
19/32
1 1/16
7/32 R
-13
-13 (REF)
.024 (REF)
-15
.097-.102 (#40 DRILL) 1 HOLE
5/16 R
5/16 R
1 1/16
5/8
5/16 R
17/32
7/32 R (TYP 2 PLACES)
3/8
3/4
1 9/32
-15 (REF)
.024 (REF)
-17
5/16 R (TYP 2 PLACES)
7/32 R
29/32
5/32
1 9/32
.097-.102 (#40 DRILL) 1 HOLE
-17 (REF)
.024 (REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	C	26512	LDW280-18093	A
	SCALE FULL		SHEET 3.00	

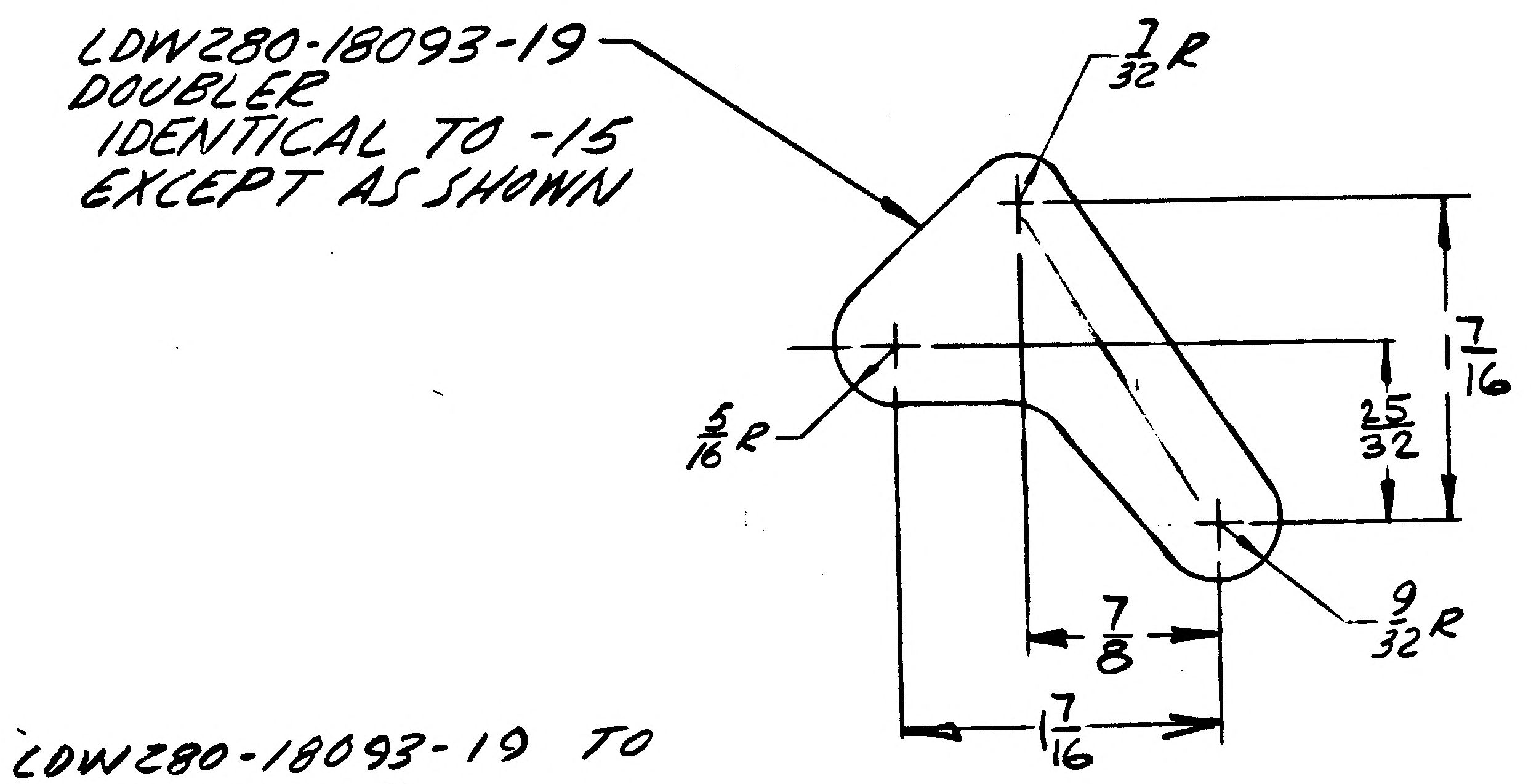
LDW280-18093 A

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18093 | EO NO. B1
CONTROL INFO NO. LEM-2-2674



LDW280-18093-19 TO
REPLACE -15
DWG TOL. FRACT. ± 1/32 DECIMAL ±.010

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: E.D. REQUIREMENTS

DESCRIPTION OF EO: ADDED -19 TO REPLACE -15

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-3 (13), LTA-5 (15), LTA8 (18)	
		LEM-1 (31) THRU	
		LEM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP -15

APPROVED BY	JHS	AAC			CCW	CAW		
DATE	9/8/66	10-4			9-8-66	9-8-66	9-10-66	9/9/66
8-30-66	VDI	~~SUPPORT~~ W	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C2	DOUBLER-DESCENT STAGE PROP LINES SPT-LWR DECK TRUSS	LDW280-18093	B1

ISSUED BY LIAISON J. CHIN x3604 SECTION V.D.I. GROUP NO. 336 PL 35 EHF

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NAS 9-1100

LNG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1438
CONTROL INFO NO. LDW280B7423

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
~~L~~DW280-18088	B3	SEE DWG
↑		↑
-18093	B3	
-18095	B2	
-18110	B1	
-18118	A4	
-18119	A4	
-18137	B3	
↓ -18140	B1	↓
LDW280-18190	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG 8 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: 5/6/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/1/69			4-2-69	4/8/69		4/9/69	5-5-69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1438

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

LEO 280		EO NO. 1526
CONTROL INFO NO. LDW280B 8105		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-17998 ✓	SEE DWG	E2
18038 ✓		B5
18088 ✓		B4
18093 ✓		B4
18095		B3
110		B2
118		A5
119		A5
LDW280-18140	SEE DWG	B2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 25 & 26 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 ([redacted] 23) REQ'MTS	8-8-69 JK 8/9/9 Bauman 8-9-69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D		DATE	7/29/69			7/29/69	8/2/69			8-9-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1526

ISSUED BY 8-22-69 G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18094 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25566	LEM-1(31)	1 EA
LEM	LDW280-25566	LTA-8(18)	1 EA
LEM	LDW280-25566	LTA-5(15)	1 EA
PART NO.		GAEC SCH NO.	
LDW280-18094-11,-13,-15-17,-19		50-2	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH				
SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED	—	GRUMMAN REL INFO A	
LAST DASH NO. USED	-19	PRIM NO.	VE(001)
		215	WI-A-8-22-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
1/32 .020 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.	NAS9-1100	LINE ITEM	# 1
DRAWN BY	P.MONACO 8-9-66	RELIABILITY	
LAYOUT BY	MARZELLA		
CHECKED BY	JB 8·9·66		
GR.LEADER			
~~VEH DES INT~~			
STRUCTURE	NM	PROJ ENGR	R. M. Carbee 8/20
STRUCTURE		REL GROUP	Bott 8-29-66
WEIGHT	8-29		

DOCUMENTATION TYPE II

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DECENT STAGE-SCIENTIFIC EQUIP BAY
LANDING RADAR SUPT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18094	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00 & 3.00						EO A1	EO INITIAL DWG RELEASE, PARTS MADE PER EO	NOTED J.B.	NOT	REQD	F. MONACO 8-9-66	RMG	

CHG APPROVED											
LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
A			NM								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18094	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-65

01

NAS 9-1100

							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18094-19	E	DOUBLER	AL. ALLOY SH	QQ-A-250/4	2024-T3	.063 X 1 5/8 X 2 1/8	NONE	88	
								-17	↑	↑	↑	↑	↑	.063 X 7/8 X 3	↑	↑	
								-15		↓				.160 X 2 7/8 X 3 3/8			
								-13	↓	DOUBLER	↓	↓	↓	.080 X 2 1/2 X 4 1/2	↓	↓	
								LDW280-18094-11	E	SPACER	AL. ALLOY SH	QQ-A-250/4	2024-T3	.063 X 3/4 X 3 3/4	NONE	88	
QTY PER ASSEMBLY																	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14.9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18094	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

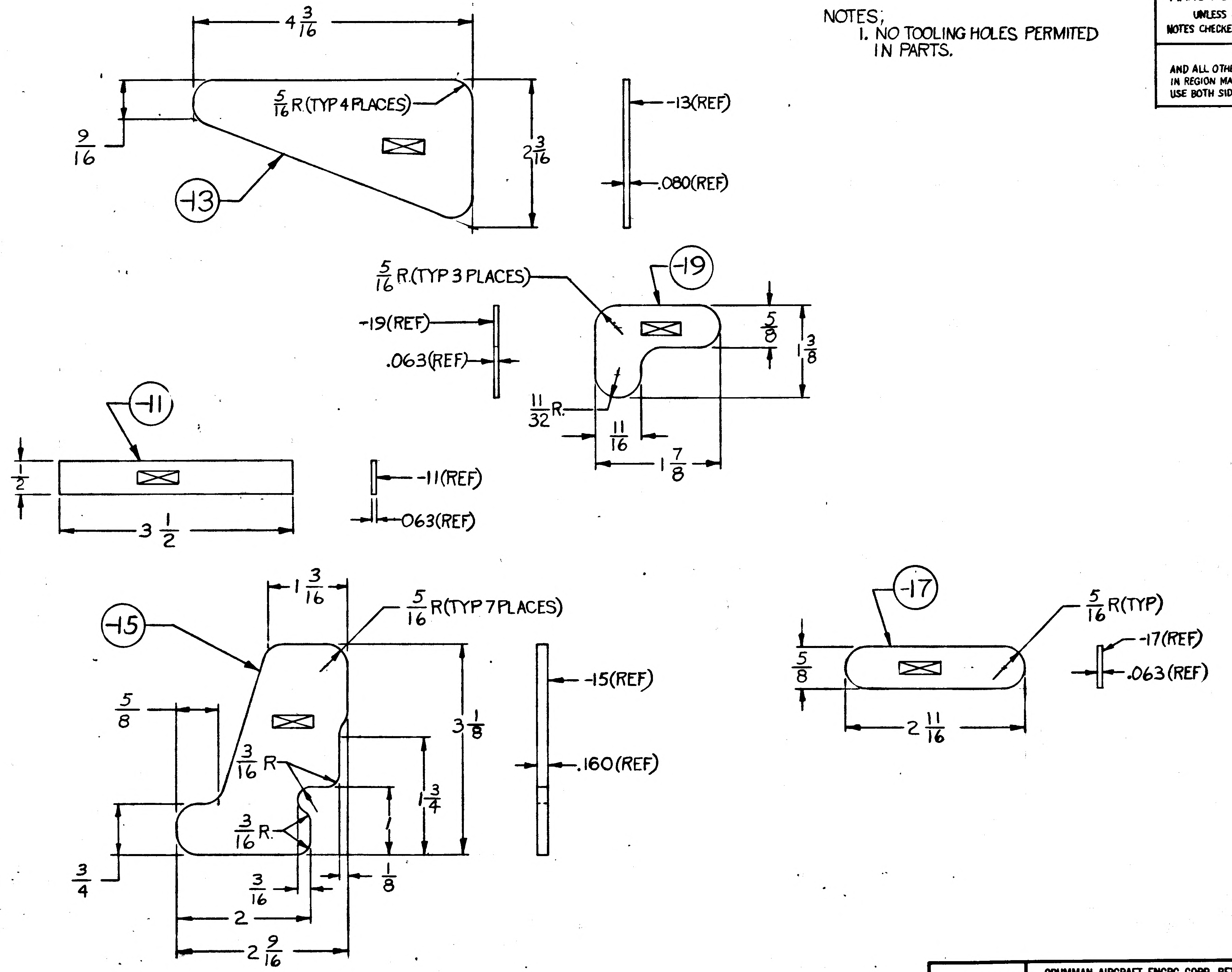
01

NAS 9-1100

NOTES;
1. NO TOOLING HOLES PERMITED IN PARTS.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓



4 3/16
5/16 R(TYP 4 PLACES)
9/16
2 3/16
-13
-13(REF)
.080(REF)
5/16 R.(TYP 3 PLACES)
-19
-19(REF)
.063(REF)
5/8
1 3/8
11/32 R.
11/16
1 7/8
-11
1/2
3 1/2
-11(REF)
.063(REF)
-15
1 3/16
5/16 R(TYP 7 PLACES)
5/8
3/16 R.
3/16 R.
3 1/8
1 3/4
3/4
3/16
1/8
2
2 9/16
-15(REF)
.160(REF)
-17
5/16 R(TYP)
-17(REF)
.063(REF)
5/8
2 11/16

LDW280-18094 A

LDW280-18094 A

	GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
LEM	SIZE C	CODE IDENT NO. 26512	LDW280-18094	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

ENG 73-2 6-64

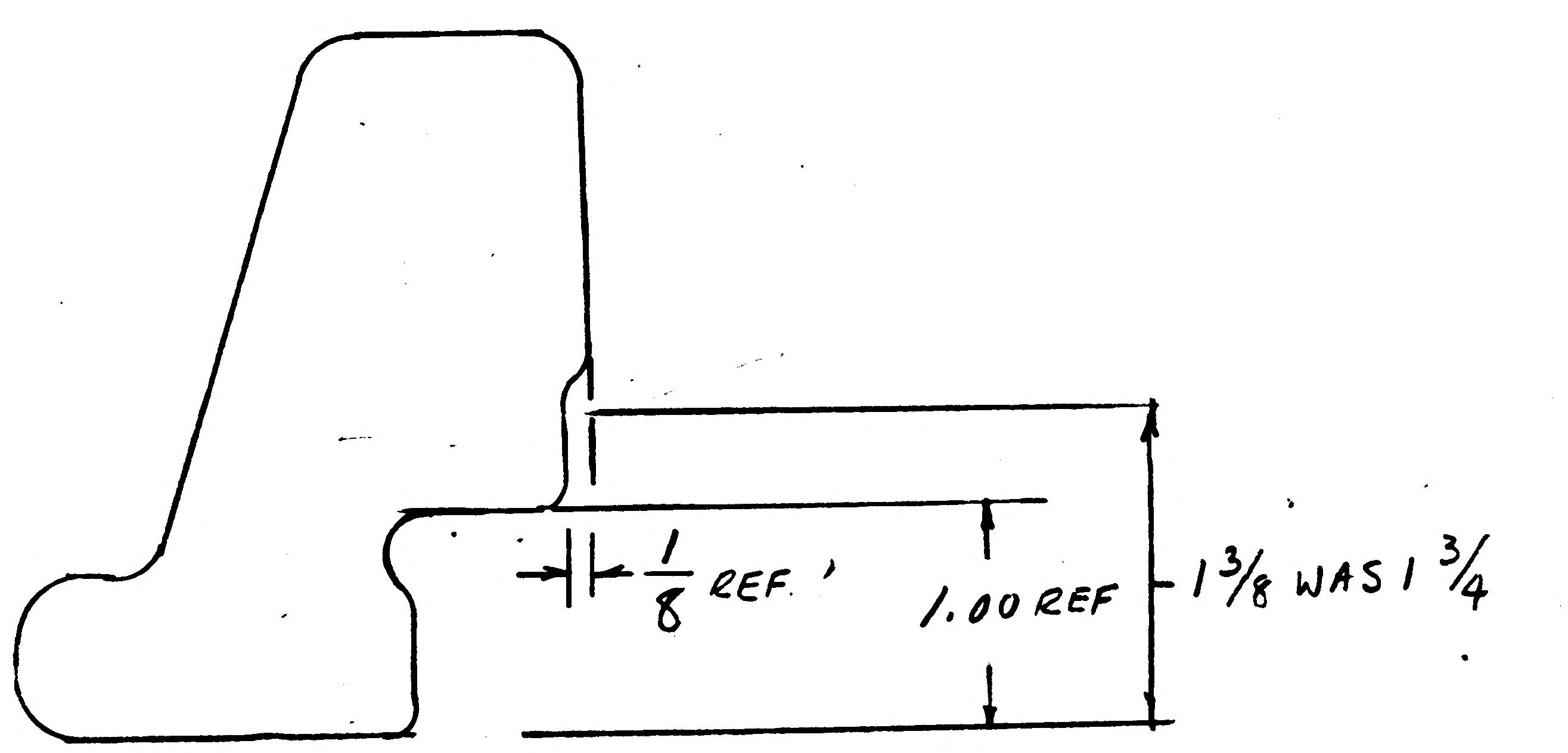
01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18094 | EO NO. B1
CONTROL INFO NO. LDW280-A-0042



ADD -21 IDENTICAL TO -15
EXCEPT AS SHOWN

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: INSUFFICIENT EDGE DISTANCE FOR RIVET

DESCRIPTION OF EO: ADDED -21 REMOVED -15

GAEC EO RELEASE: UE 9-23

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA 5, 8	(15) (18)
LEM		LEM 1	(31)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-15

APPROVED BY	WT	AAR		~	WJW		WP	
DATE	9/12/66	10-4		~	9/12/66		9-23-66	9/29/66
9-12-66	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOUBLER- D/S - SCIENT. EQUIP BAY	LDW280-18094	B1

ISSUED BY RAGAS X6454 SECTION VDI GROUP NO. 335 PL 4

01

NAS 9-1100

LDW280-18095 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53794	LM-15(45)	2 EA
		-14(44)	2 EA
		-13(43)	2 EA
		-12(42)	2 EA
		-11(41)	2 EA
		-10(40)	2 EA
		-9(39)	2 EA
		-8(38)	2 EA
		-7(37)	2 EA
		-6(36)	2 EA
		-5(35)	2 EA
		-4(34)	2 EA
		-3(33)	2 EA
LM	LDW280-53794	LM-2(32)	2 EA

PART NO. LDW280-18095-13 & -15

GAEC SCH NO. 50-2

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53794	LM-15(45)	1
		-14(44)	1
		-13(43)	1
		-12(42)	1
		-11(41)	1
		-10(40)	1
		-9(39)	1
		-8(38)	1
		-7(37)	1
		-6(36)	1
		-5(35)	1
		-4(34)	1
		-3(33)	1
LM	LDW280-53794	LM-2(32)	1

PART NO. LDW280-18095-11

GAEC SCH NO. 50-2

WORK PKG FUNCTION NO.110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		200			3.00	
REV	A	A		A			A	
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

GRUMMAN REL INFO A

LAST DASH NO. USED -15

PRIM NO. 207 JK(60) MP-5A-6/16/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	G. KOURY 8-4-66		
LAYOUT BY	G. KOURY 8-4-66		
CHECKED BY			
GR LDR	STRAKOSCH 8/11/66		
VDI	PAULSRUD 8-12		
STRUCT	NM FEB	PROJ ENGR	PAULSRUD 8-12
STRUCT	HILDERMAN 8-13-66	REL GROUP	BOTTI 8-29-66
WEIGHTS	ROBESCH 8-24-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE ~ AFT R.H. BEAM PANEL
CONTROL ASSY. CA-3 DISCONNECT.

SIZE B
CODE IDENT NO. 26512
LDW280-18095 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-18095 REV NC 8-29-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHG. LAST REV NC, LOFTED DWG WAS DIM. ADDED SHEET 1.10 A.ANDRIANI 19 MAY 67						
A	1	1.00,1.10 2.00,3.00	7G					EOA1	FOR-11 3/32 R TYP(3) WAS 3/16 R TYP (3); 1/4 R TYP (4) WAS 1/4 R TYP(2); DRILL (.097-.102) 2 HOLES IN ② -11, COML SPEC. IN B/M FOR-11 WAS 7075-T63	LM-2(32) THRU LM-15(45)	✓		ANDRIANI 19 MAY 1967	☒	☒

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18095	A
SCALE NONE		SHEET 1.10	

FOR CONTINUATION OF REVISIONS SEE SHEET ________

ENG 77.3 5-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18095-15	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075-T6	.032X2X2	NONE	88	
		LDW280-18095-13	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075-T6	.032X3X12	NONE	88	
		LDW280-18095-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075-O	.040X7X5	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18095	A

SCALE NONE

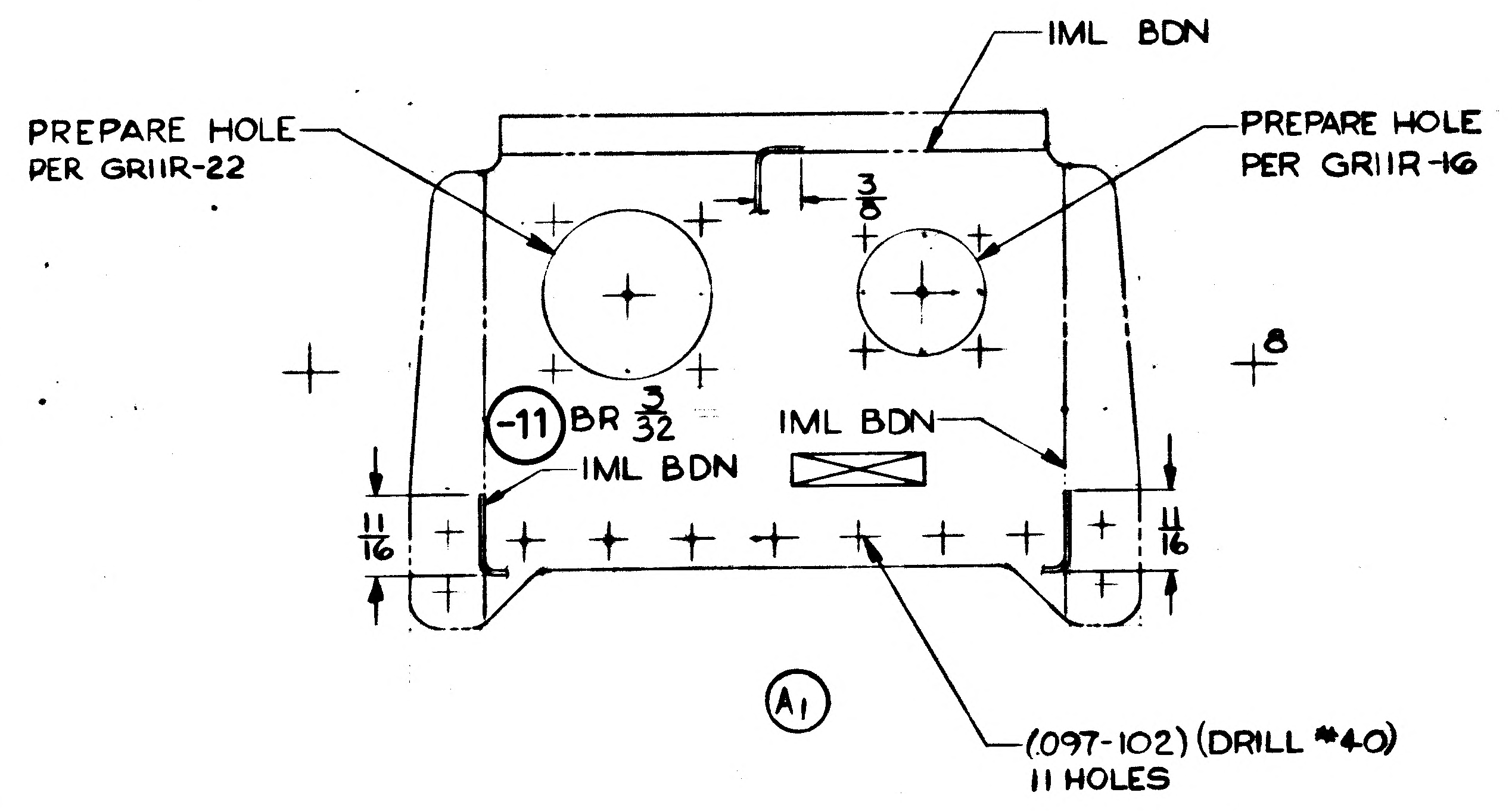
SHEET 2.00

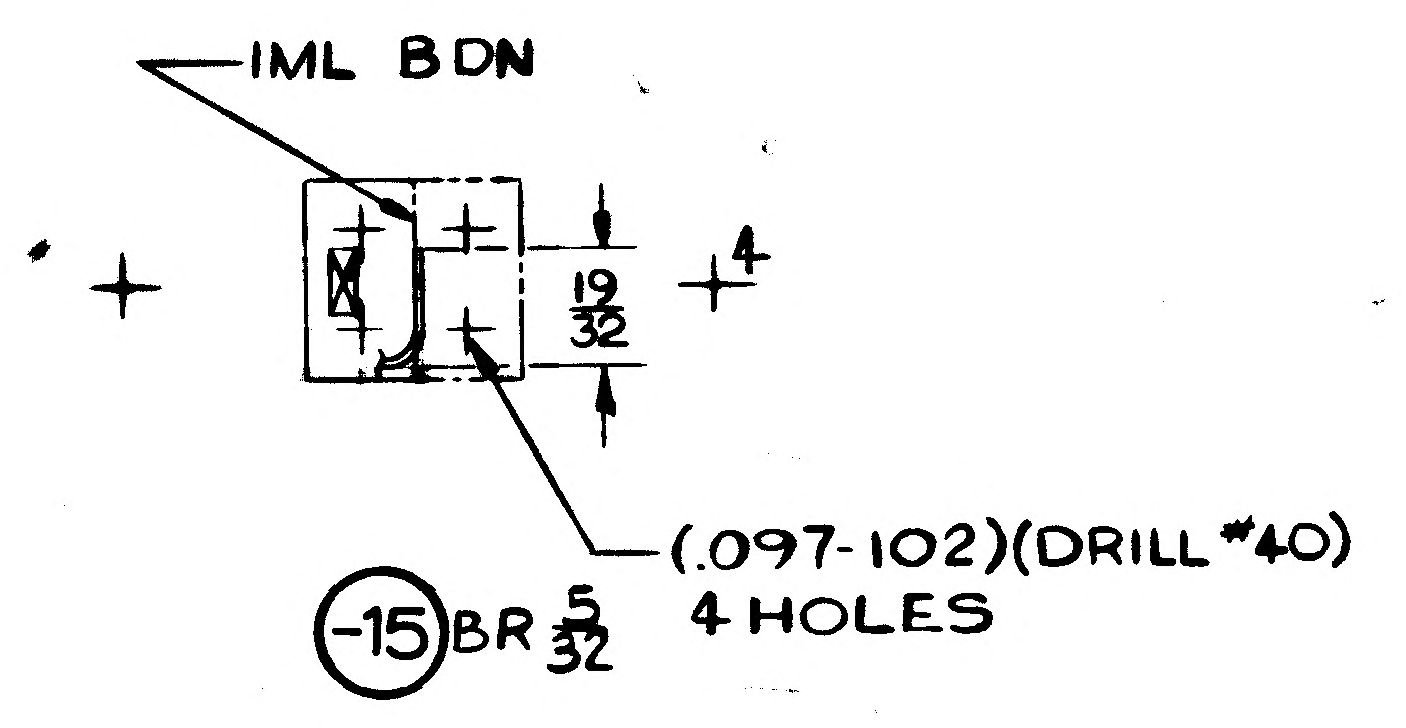
ENG 77.2 7-65

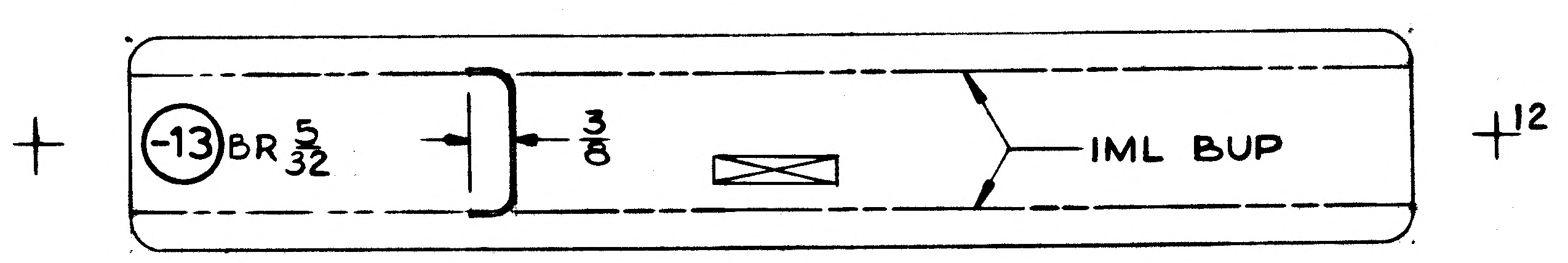
01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.


IML BDN
PREPARE HOLE PER GR11R-22
PREPARE HOLE PER GR11R-16
3/8
-11 BR 3/32
IML BDN
IML BDN
11/16
11/16
8
A1
(.097-.102) (DRILL #40)
11 HOLES


IML BDN
19/32
4
(.097-.102)(DRILL #40)
4 HOLES
-15 BR 5/32


-13 BR 5/32
3/8
IML BUP
12

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~[illegible]~~ IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	F	26512	LDW280-18095	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

NAS 9-1100

H.G.

ENG 32.1 REV 3-65

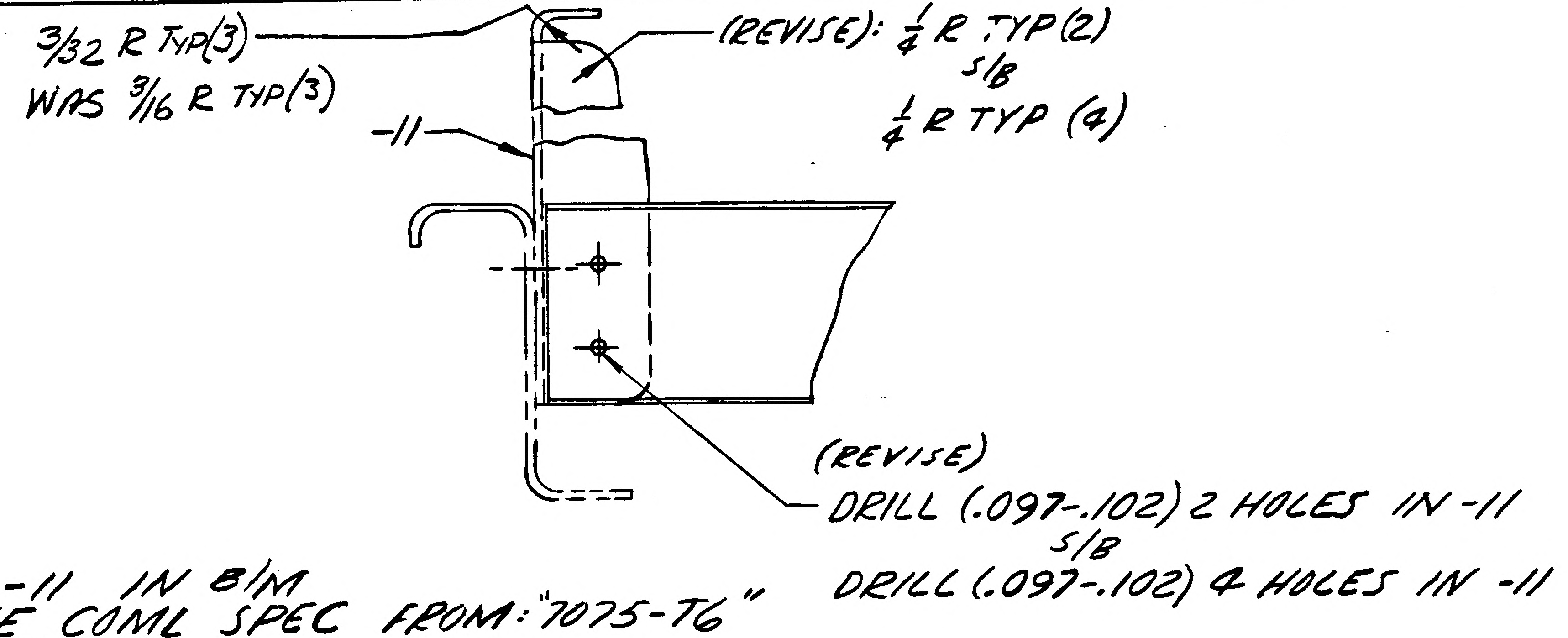
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18095	EO NO. A1
CONTROL INFO NO. LEM-2-2670	

FOR -11



3/32 R TYP(3)
WAS 3/16 R TYP(3)
-11
(REVISE): $\frac{1}{4}$ R TYP(2)
S/B
$\frac{1}{4}$ R TYP (4)
(REVISE)
DRILL (.097-.102) 2 HOLES IN -11
S/B
DRILL (.097-.102) 4 HOLES IN -11

FOR -11 IN B/M
REVISE COML SPEC FROM: "7075-T6"
TO: "7075-0"
ADD TO PROCESS SYM FOR -11 "T6"

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	

REASON FOR EO: DWG CORRECTION AND TO FACILITATE MANUFACTURE (RTE 02-131-178 REF)

DESCRIPTION OF EO: FOR -11 - 3/32 R TYP(3) WAS 3/16 R TYP (3); $\frac{1}{4}$ R TYP (4) WAS $\frac{1}{4}$ R TYP (2); DRILL (.097-.102) 4 HOLES IN -11 WAS: DRILL (.097-.102) 2 HOLES IN -11 COML SPEC IN B/M FOR -11 WAS: "7075-T6"

GAECC EO RELEASE: FR

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM	LEM-2(32) THRU LEM-15(45)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY		sm			caw	caw	RMC	
DATE	9/[illegible]/66	10-4			9-12-66	9-12-66	9-14	9-13-66
9-5-66	VDI	~~SUPPORT~~ WJ	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C2	BRACKET-DESCENT STAGE-AFT R.H. BEAM PANEL CONTROL ASSEM. CA-3 DISCONN.	LDW280-18095	A1

ISSUED BY LIAISON J. CHIN x3604 SECTION V.D.I. GROUP NO. 335 PL 35 EMF

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NAS 9-1100

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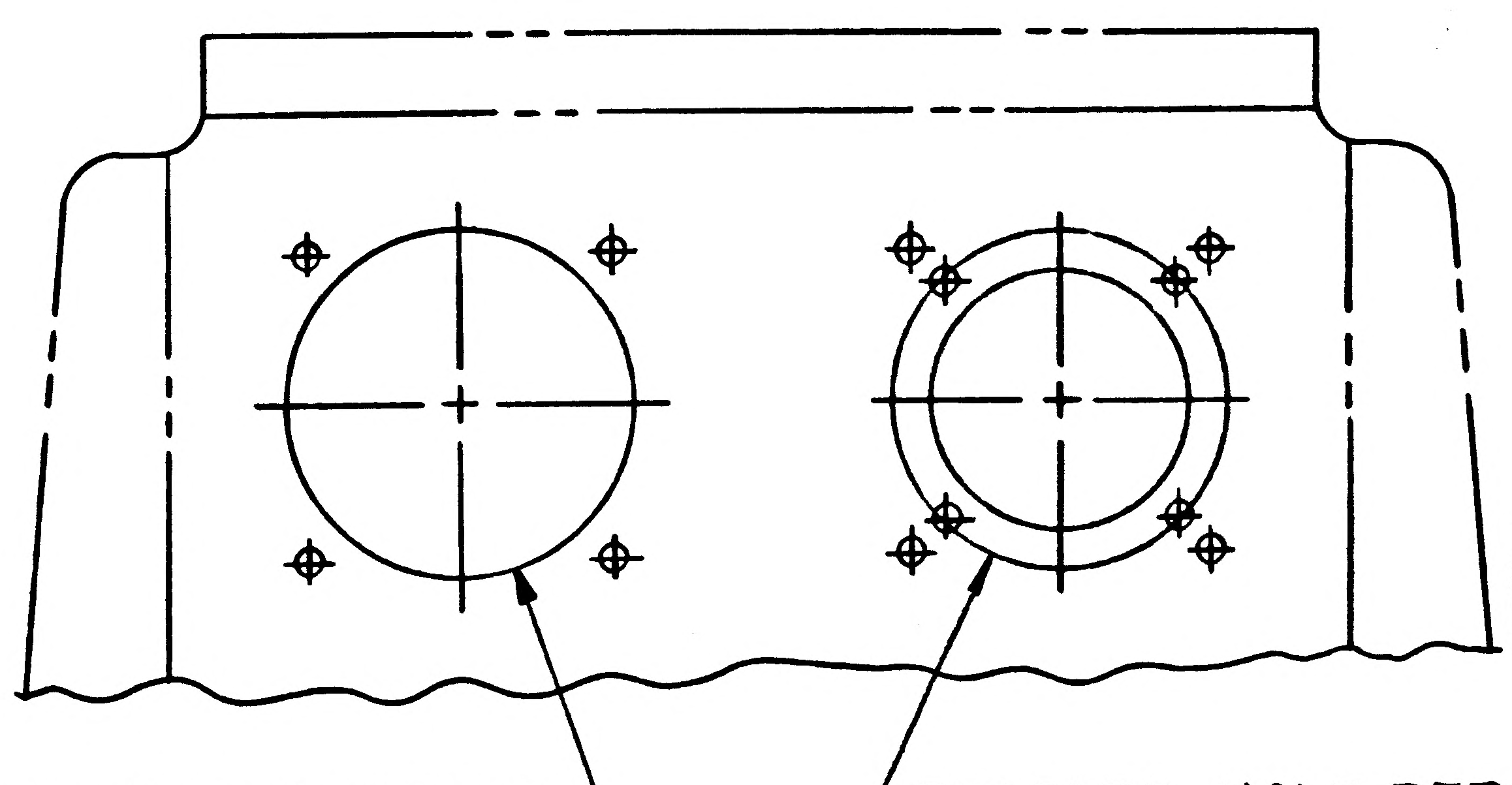
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18095
EO NO. B1
CONTROL INFO NO. LM-2-4105



-17 MAY BE MADE BY REWORKING -11

PREPARE HOLE PER GHIIR-22 (WAS PER GRIIR-22)

PREPARE HOLE PER GHIIR-16 (FOR -11) (WAS PER GRIIR-16)
PREPARE HOLE PER GHIIR-22 (FOR-17)

LDW280-18095-11 (REF)
-17 (ADD)

IN FLD, B/M, & M/B, ADD -17 (SAME AS -11 EXCEPT AS SHOWN) FOR LM-4(34) THRU LM-15(45)
IN M/B FOR -11, DELETE LM-4(34) THRU LM-15(45) EFFECTIVITY
TO BE LOFTED

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

2

REASON FOR EO: REVISION OF CONNECTOR FOR LATEST EFFECTIVITY REQUIRES NEW BRACKET

DESCRIPTION OF EO: IN FLD FOR -11 REVISED CALLOUTS, GHIIR-16 & GHIIR-22 WERE GRIIR-16 & GRIIR-22. IN MOD/BLK FOR -11, DELETED LM-4(34) THRU LM-15(45) EFFECTIVITY. IN FLD/DWG, B/M & MOD/BLK ADDED -17.

GAEC EO RELEASE: JK
02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				—			RB	
DATE	11/4/67				10/27/67	10/26/67	11/4/67	10-30-67

PRIORITY: C
DRAWING TITLE: BRACKET~DESCENT STAGE~AFT R.H. BEAM PNL-CONT. ASSY~CA-3 DISCONNECT
DRAWING NO.: LDW280-18095
EO NO.: B1

ISSUED BY LIAISON J. MALONEY 10/25/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1438
CONTROL INFO NO. LDW280B7423		

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18088	B3	SEE DWG
-18093	B3	
-18095	B2	
-18110	B1	
-18118	A4	
-18119	A4	
-18137	B3	
-18140	B1	
LDW280-18190	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 53 PG 8 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 5/6/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	REWORK	✓ SCRAP

APPROVED BY								
DATE	4/1/69			4-2-69	4/8/69		4/9/69	5-5-69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1438

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.(

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[illegible] LEO 280 | EO NO. 1526
CONTROL INFO NO. LDW 280B 8105

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW 280-17998 ✓	SEE DWG	E2
18038 ✓		B5
18088 ✓		B4
18093 ✓		B4
18095 ✓		B3
110		B2
118		A5
119		A5
LDW 280-18140	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 25 & 26 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR ~~EXTENDED~~ EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 ([redacted] 23) REQMTS

GAEC EO RELEASE: 8-5-69 / 8/9/69 / Bauman 8-9-69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT
DATE	7/29/69			7/29/69	8/2/69		8/4/69	8-9-69

PRIORITY C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO. LEO 280 | EO NO. 1526

8-22-69 ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

LDW280-18096

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
1 LEM	LDW280-25809	LTA-5(15)	1
PART NO. LDW280-18096-15,-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25810	LTA-5(15)	1
PART NO. LDW280-18096-11,-13		GAEC SCH NO. 50-1	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO	
		PRIM NO.	VE(001)
LAST DASH NO. USED	-17	207	MP-8-22-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM # 1
DOCUMENTATION TYPE # II

DRAWN BY	R.P. JEROME	WEIGHTS	8-24
LAYOUT BY	R.P. JEROME		
CHECKED BY			
GRP LDR	J. Stracconi 8/15/66		
VEH DES. INT	8/15		
STRUCTURE	R.K. INM 8/17	PROJ ENGR	R. M. Carbee 8/20
STRUCTURE	Hilderman 8/19	REL GROUP	Bott 8-29-66
RELIABILITY			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKETS -D.S
GSE ~ ELECTRICAL INTERFACE

SIZE B
CODE IDENT NO. 26512
LDW280-18096
SCALE NONE
SHEET 1.00 OF 3.00

ENG 77.1 12-65

CDR = 8/19

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18096-17	E	GUSSET	AL. ALY. SH	QQA-250/5	2024-T3	.063x3 x 4	—	88	
		↕ -15	E	BRACKET	↕	QQA-250/5	↕	.063x8X 14½	—	88	
		↕ -13	E	CHANNEL	↕	QQA-250/5	↕	.063x3¼x5	—	88	
		LDW280-18096-11	E	CLIP	AL. ALY. SH	QQA-250/5	2024-T3	.063x1¼x3½	—	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

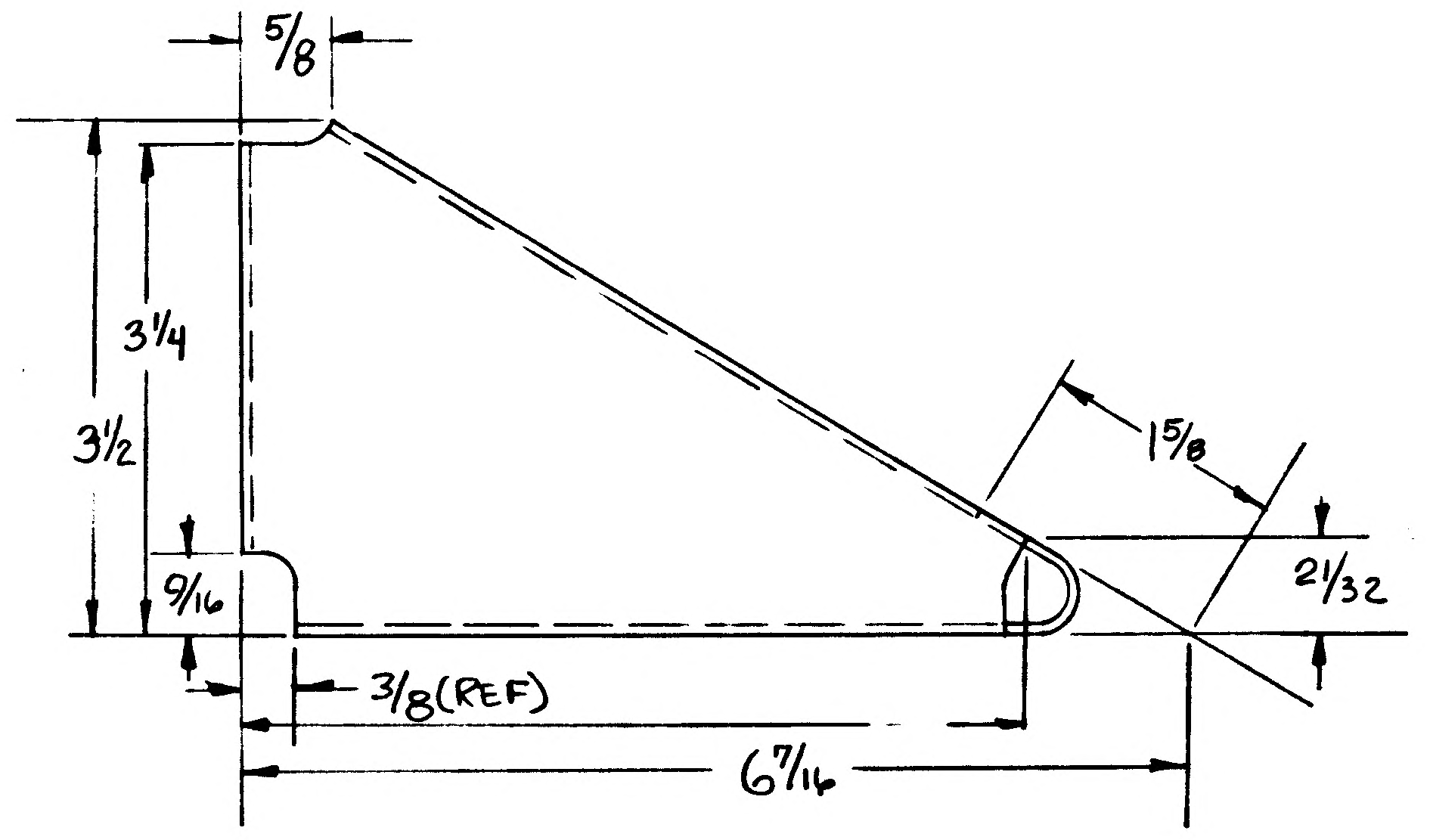
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18096
SCALE NONE
SHEET 2.00 OF 3.00

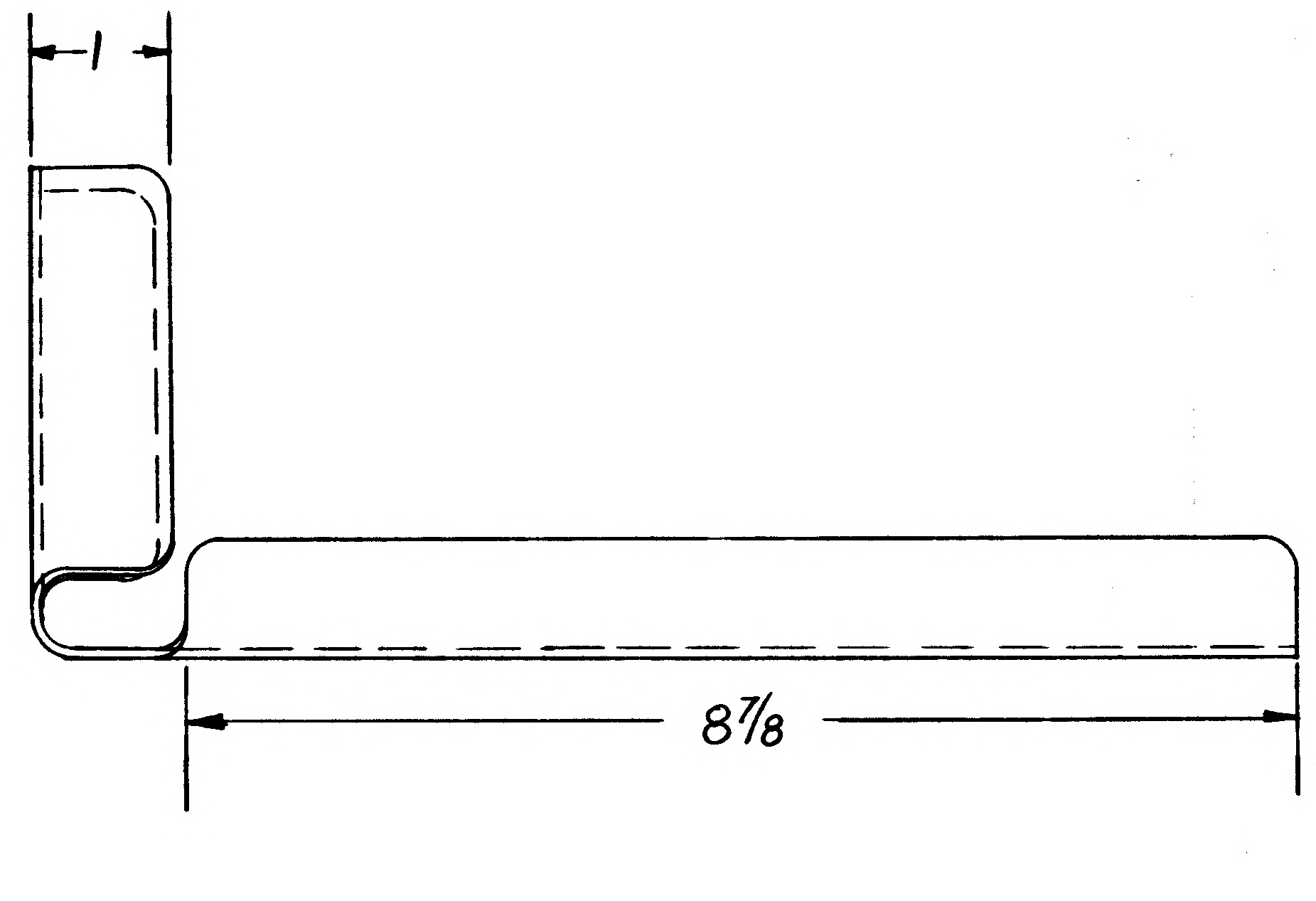
ENG 77.2 7-65

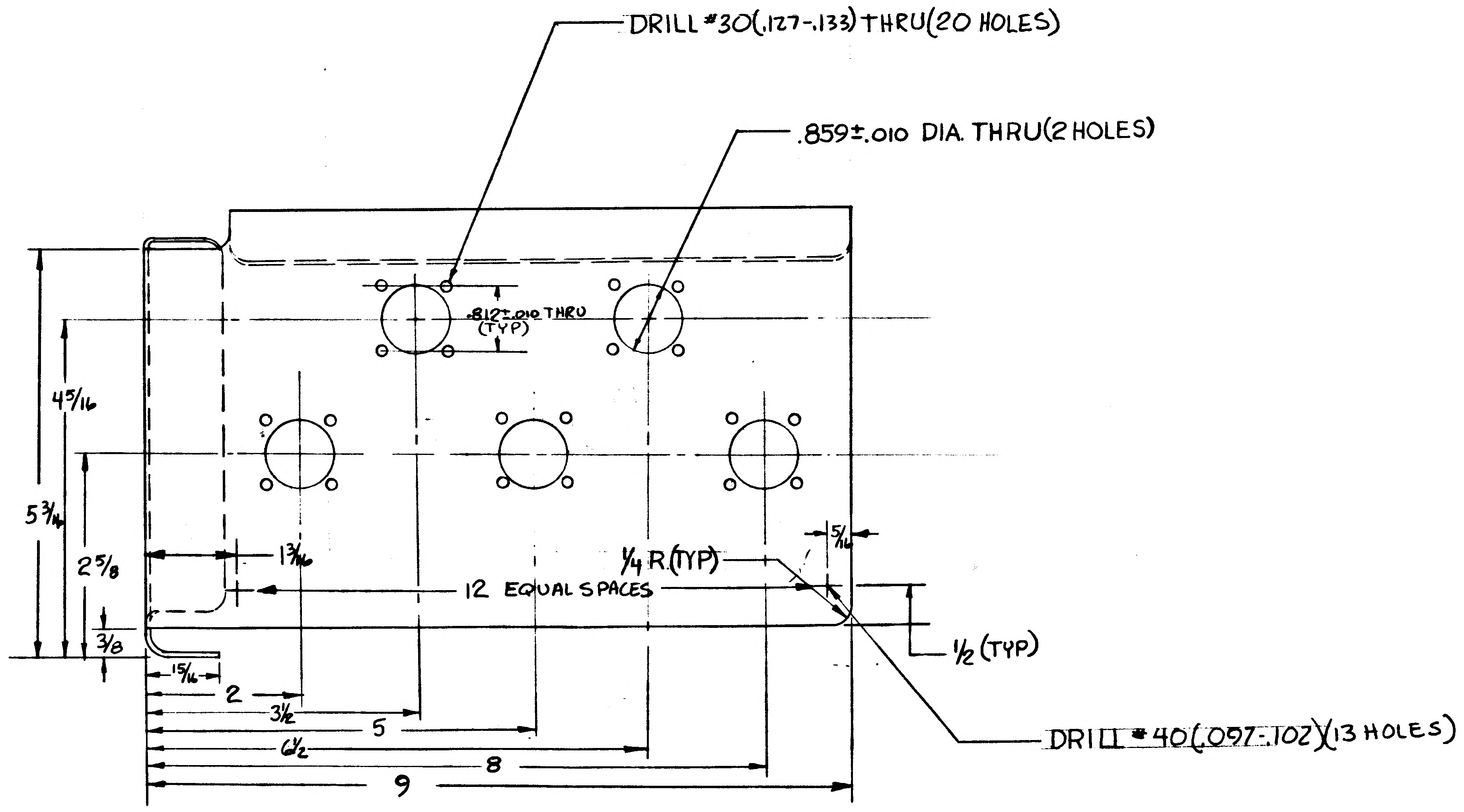
01

NAS 9-1100



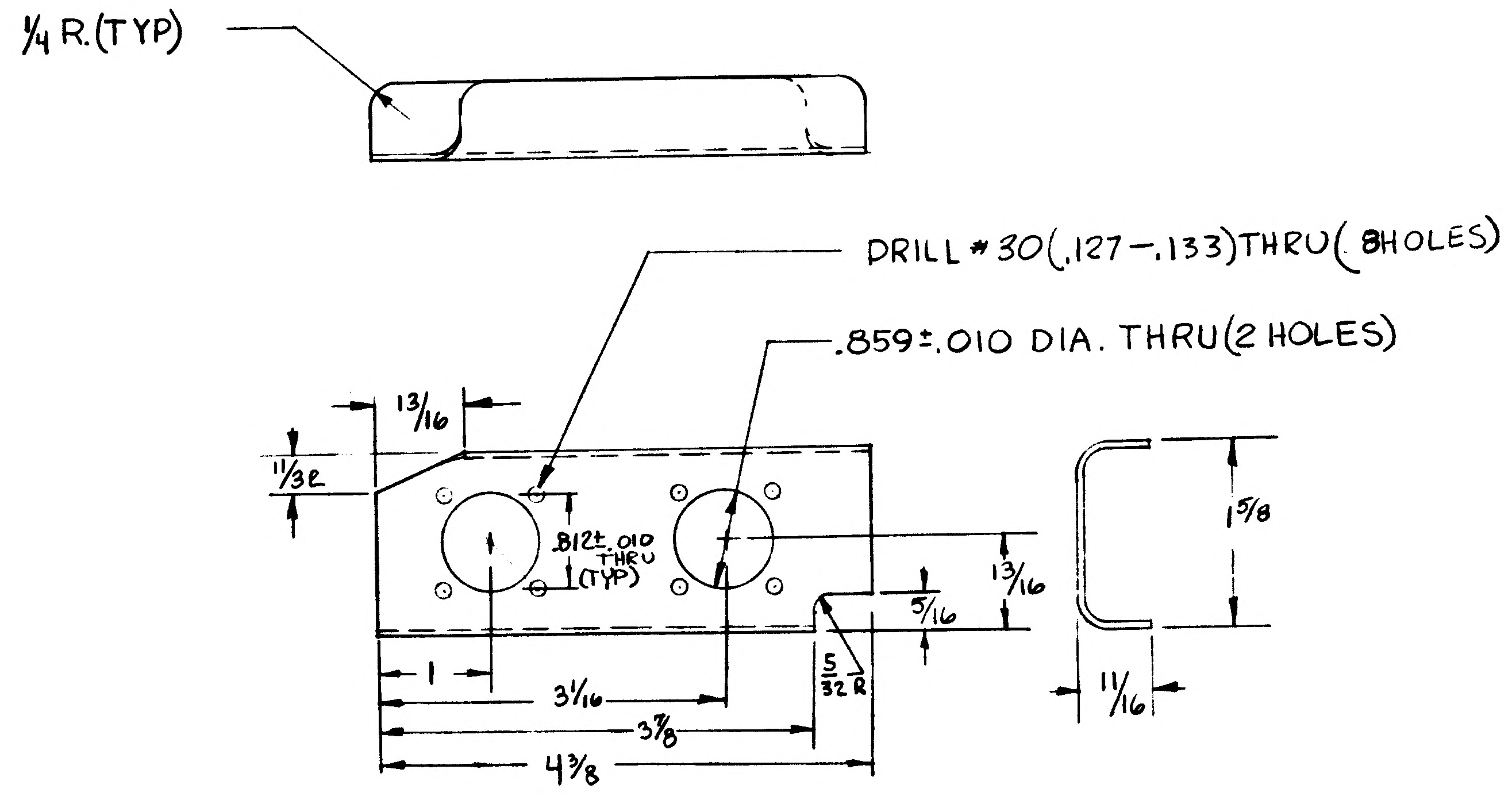
5/8
3 1/4
3 1/2
9/16
1 5/8
21/32
3/8 (REF)
6 7/16





DRILL #30 (.127-.133) THRU (20 HOLES)
.859±.010 DIA THRU (2 HOLES)
.812±.010 THRU (TYP)
4 5/16
5 3/16
2 5/8
3/8
1 3/16
12 EQUAL SPACES
1/4 R (TYP)
5/16
1/2 (TYP)
DRILL #40 (.097-.102) (13 HOLES)
15/16
2
3 1/2
5
6 1/2
8
9

LDW280-18096-15
B.R 7/32



1/4 R. (TYP)
DRILL #30 (.127-.133) THRU (8 HOLES)
.859±.010 DIA. THRU (2 HOLES)
13/16
11/32
.812±.010 THRU (TYP)
13/16
5/16
5/32 R
1
3 1/16
3 7/8
4 3/8
1 5/8
11/16

LDW280-18096-13
B.R. 7/32

DRIL
(6

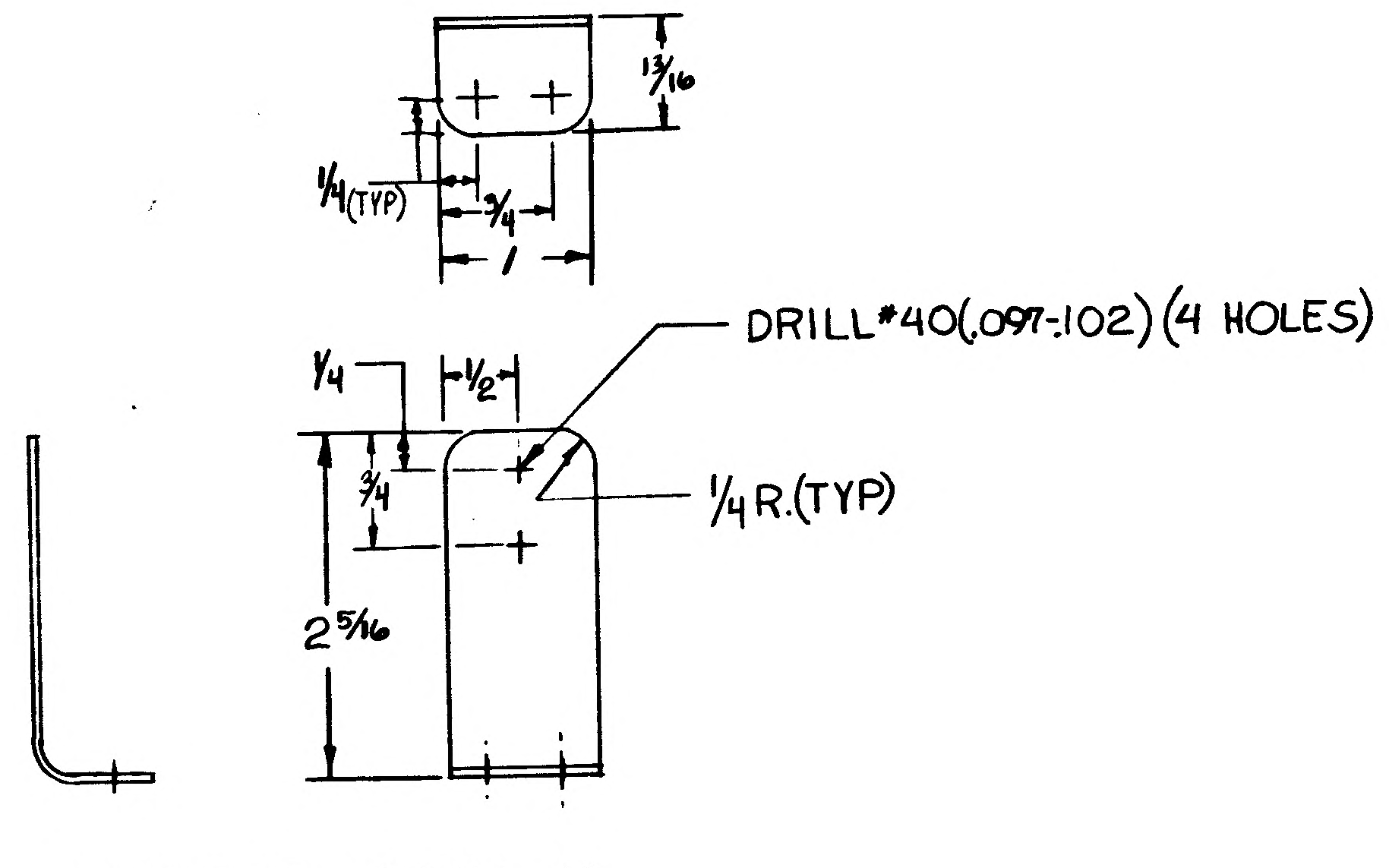
2/2

01/02

NAS 9-1100

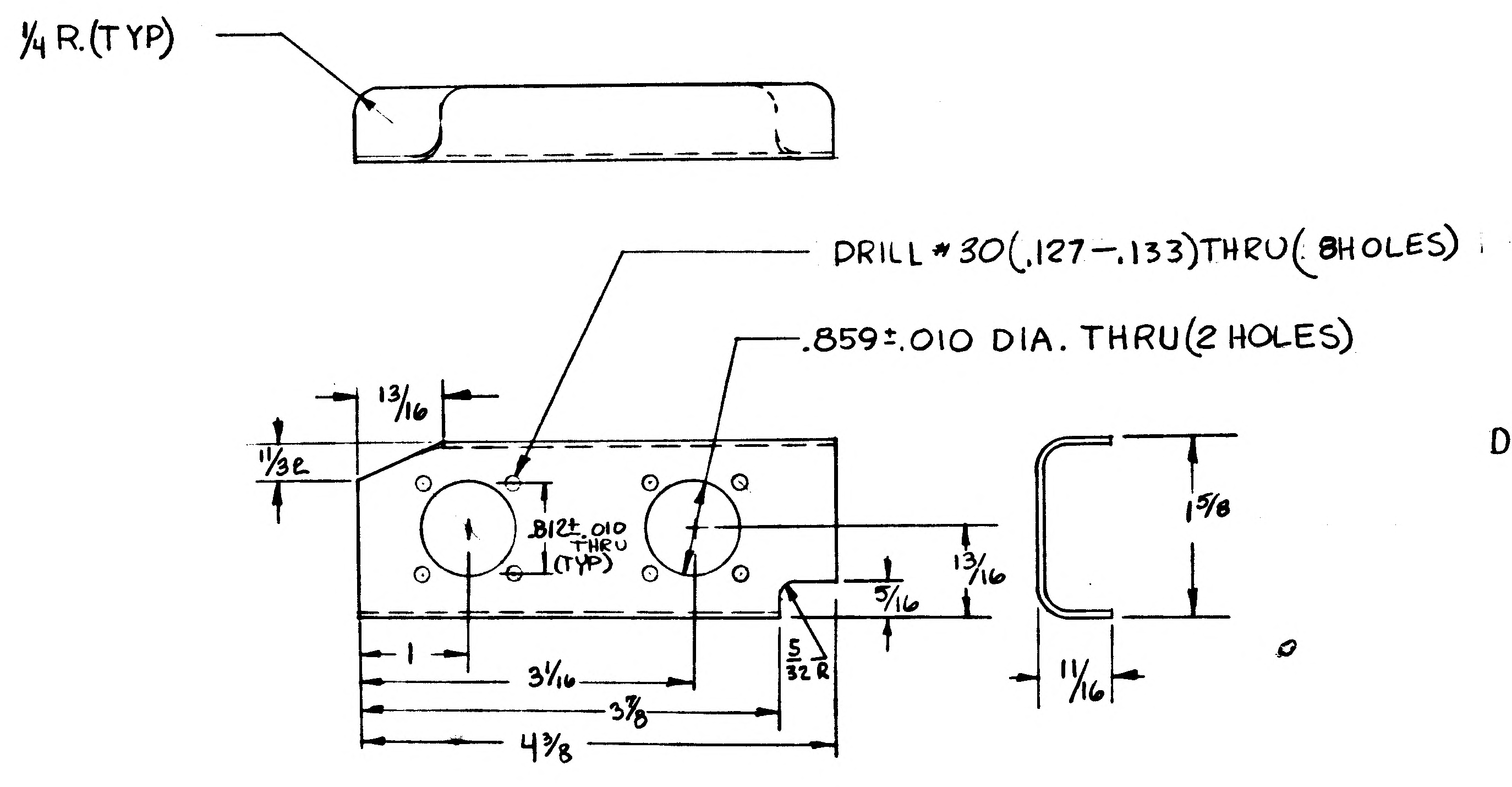
HOLES)

RILL #40(.097-.102)(3 HOLES)



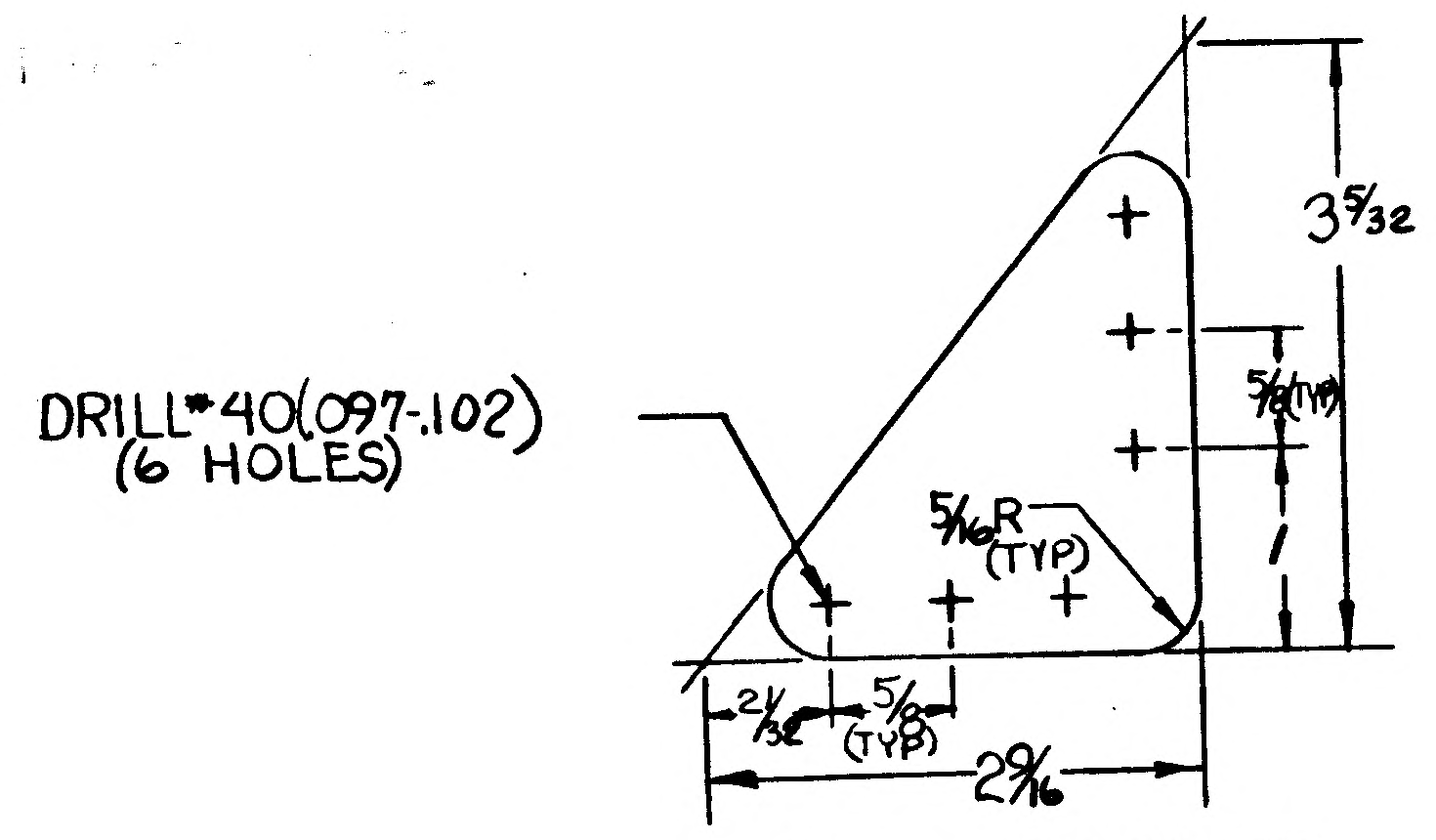
13/16
1/4 (TYP)
3/4
1
DRILL #40(.097-.102)(4 HOLES)
1/4
1/2
3/4
1/4 R.(TYP)
2 5/16

LDW280-18096-11
B.R. 7/32



1/4 R.(TYP)
DRILL #30(.127-.133)THRU(8HOLES)
.859±.010 DIA. THRU(2 HOLES)
13/16
11/32
.812±.010 THRU (TYP)
13/16
5/16
5/32 R
1
3 1/16
3 7/8
4 3/8
1 5/8
11/16

LDW280-18096-13
B.R. 7/32



DRILL #40(.097-.102) (6 HOLES)
3 5/32
5/8 (TYP)
5/16 R (TYP)
21/32
5/8 (TYP)
2 9/16

LDW280-18096-17

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

LDW280-18096

LDW280-18096

LAYOUT RELEASE ~ TO BE REDRAWN ON PRODUCTION FORMAT

02/02 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-18096	
MODEL OR END ITEM	SCALE			SHEET 3.00

H.G.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18096		EO NO. A1
CONTROL INFO NO. LEM-2-2741.		

IN F/D, B/M AND MODEL BLOCK:

1. CREATE LDW280-18096-16 BRACKET OPPOSITE TO -15

2. DELETE LDW280-18096-15 BRACKET.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO BRACKET INTERFERES WITH EXISTING INSTALLATION.	DESCRIPTION OF EO IN F/D, B/M AND MOD. BLK ADDED LDW280-18096-16 OPP TO -15. DELETED -15.	GAEC EO RELEASE

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA5 (15)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			-15
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY		AMR			cow	cow		
DATE		10-4			9-8-66	9-8-66	9-10-66	9/9/66
9.7.66	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C_2	BRACKETS - D.S. GSE ELECTRICAL INTERFACE.	LDW280-18096	A1

ISSUED BY LIAISON: G. MARTELL x3604 SECTION VEH. DES. INT. GROUP NO. 335 PL 35

01

NAS 9-1100

LDW280-18097 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25799	LTA-5(15)	2
PART NO. LDW 280-18097-13		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25799	LTA-5 (15)	1 EA
PART NO. LDW 280-18097 -11, -12 & -15		GAEC SCH NO. 50-2	

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED A

LAST DASH NO. USED -15

GRUMMAN REL INFO A

PRIM NO. 207 SK(001) MP-EA 6/12/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.005 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	G.W.H.	REL	
LAYOUT BY	HANSMANN		
CHECKED BY			
GP LDR	STRAKOSCH 8-8-66		
V.D.I.	BISCHOFF 8-19		
STRUCT		PROJ ENGR	
STRUCT	HILDERMAN 8-19	REL GROUP	BOTTI 8-29-66
WTS	ROBESCH		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ LOWER DECK
QUAD 4 ~ GROUND SPT EQUIP

SIZE B
CODE IDENT NO. 26512
LDW280-18097 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

THIS DWG SUPERSEDES LDW280-18097 NO CHG 8-29-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REV NO CHANGE ADDED SH 1.10 R. ROSARIO 6-8-67						
A	1	3.00 1.10						EO A1	IN F/D: ADDED (.097-.102 DIA) PILOT HOLES (10), 1/4 DIM, 15/16 TYP FOR -11 FOR -12 (EXCEPT FOR PILOT HOLES)	LTA-5(15)	✓		ROSARIO 6-8-67	X	X

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18097	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18097-15	E	PLATE	AL ALY SH	QQ-A-250/4	2024-T3	.125 X 8 X 8	NONE	88	
		-13	↕	ANGLE	AL ALY EXTR	QQ-A-200/3	2024-T3511	DIE*13637 X 8	↕	↕	
		-12	↕	ANGLE	AL ALY EXTR	QQ-A-200/3	2024-T3511	DIE#22637 X 8	↕	↕	
		LDW280-18097-11	E	ANGLE	AL ALY EXTR	QQ-A-200/3	2024-T3511	DIE#22637 x 8	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18097	A

SCALE NONE

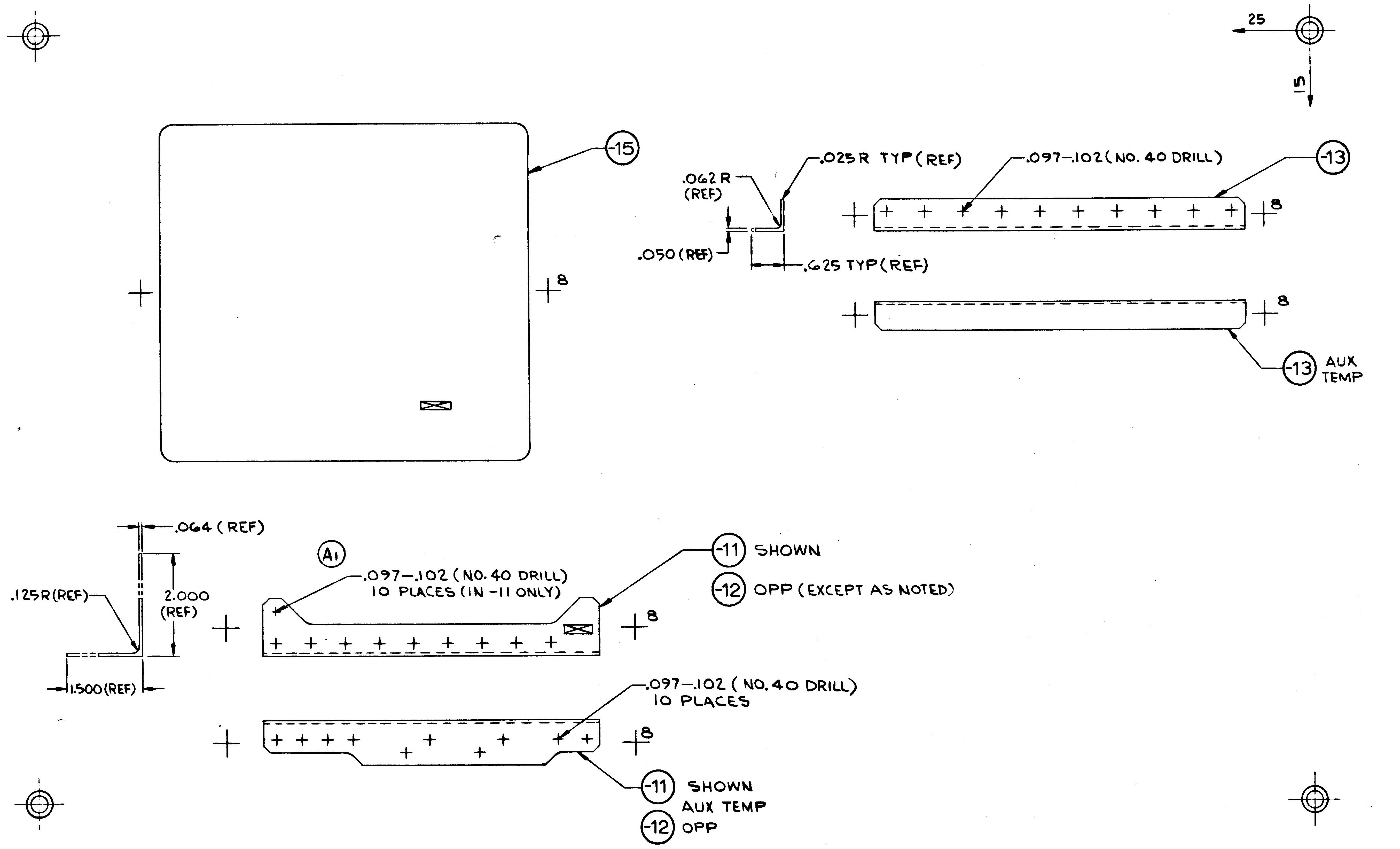
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

LDW280-18097 A



25
15
-15
.062 R (REF)
.025 R TYP (REF)
.097-.102 (NO. 40 DRILL)
-13
8
.050 (REF)
.625 TYP (REF)
-13 AUX TEMP
.064 (REF)
A1
.097-.102 (NO. 40 DRILL) 10 PLACES (IN -11 ONLY)
-11 SHOWN
-12 OPP (EXCEPT AS NOTED)
.125R (REF)
2.000 (REF)
1.500 (REF)
.097-.102 (NO. 40 DRILL) 10 PLACES
-11 SHOWN AUX TEMP
-12 OPP

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18097 A

2-26-69

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18097	A
	SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1

01

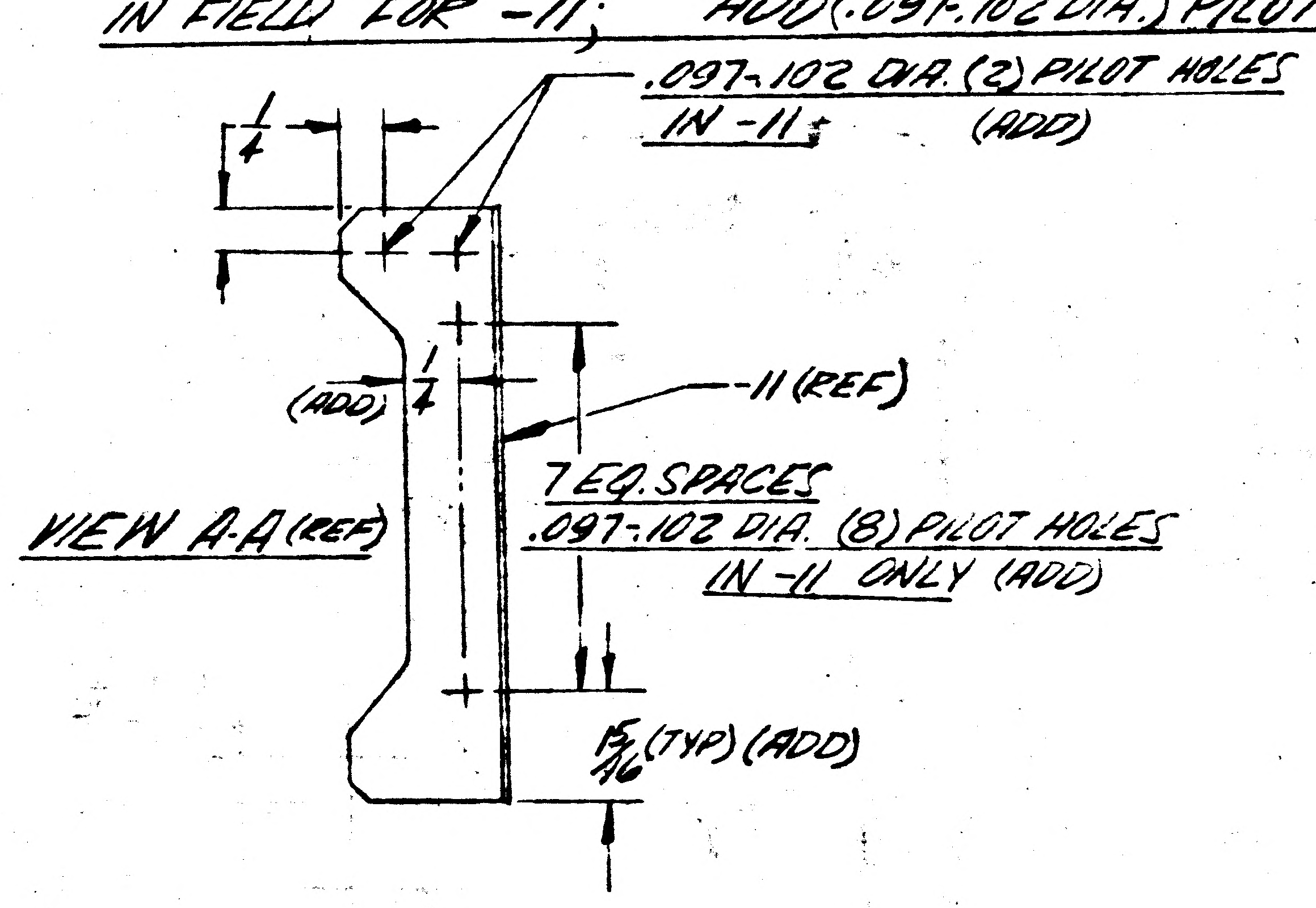
NAS 9-1100

NG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18097 EO NO. A1
CONTROL INFO NO. LEM-2-2745

IN FIELD FOR -11; ADD (.097-.102 DIA.) PILOT HOLES AS SHN.:


.097-.102 DIA. (2) PILOT HOLES
IN -11; (ADD)
1/4
(ADD) 1/4
-11 (REF)
VIEW A-A (REF)
7 EQ. SPACES
.097-.102 DIA. (8) PILOT HOLES
IN -11 ONLY (ADD)
15/16 (TYP) (ADD)

NOTE: IN FIELD ADD "EXCEPT FOR PILOT HOLES AS SHOWN":

- (-11) SHOWN (REF)
- (-12) OPP. (REF) (EXCEPT FOR PILOT HOLES) (ADD) DIE # 22637 (REF)

2

(THIS IS AN ORIGINAL E.O.)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: HOLES REQUIRED TO LOCATE ATTACHMENTS ON NEXT ASSEMBLY.

DESCRIPTION OF EO: IN FIELD: ADDED: (.097-.102 DIA) PILOT HOLES (10); 1/4 DIM., 15/16 TYP. FOR -11. FOR -12-"EXCEPT FOR PILOT HOLES"

GAEC EO RELEASE: R

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-5(15)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

APPROVED BY		JAB	SAK			CAW	CAW	RMC	J
DATE	9.9.66	9/8/66	10-4			9-10-66	9-10-66	9-13	9/10/66
		VDI	~~SUPPORT~~ WR	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SEMI~~

PRIORITY: C2
DRAWING TITLE: D.S.~UP DECK~ANGLE~QUAD 4~G.S.E. SUPPORT
DRAWING NO.: LDW280-18097
EO NO.: A1

ISSUED BY LIAISON / E.NEFF X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01

LDW280-18100 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23544	LEM-2 (32)	1 EA
LEM	LDW280-23544	LTA-3 (13)	1 EA

PART NO. LDW280-18100-11, -13 & -15

GAEC SCH NO. 502

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO A

PRIM NO. 207 FR(00) MP9-29-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM II

DOCUMENTATION TYPE III

DRAWN BY R.NISBET 8-18-66
LAYOUT BY HANSMAN
CHECKED BY H.RODALEWICZ 8/19/66
~~GROUP LDR~~
VEH.DES.INT 9/1/66
STRUCTURES 9/19/66
STRUCTURES
WEIGHTS 9-27

PROJ ENGR R.M. 9-19
REL GROUP 9-21-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE ~ R.H. INBOARD ~
AFT LOWER DECK

SIZE B
CODE IDENT NO. 26512
LDW280-18100 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00 & 3.00						E.O. A1 Ⓡ	INITIAL DWG RELEASE PARTS MADE PER E.O.	LTA-3 & LEM-2	NOT	REQD	NISBET 8-18-66		RMC

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS
	A		9/1/66	9/12/66		

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18100	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18100-15	E	FILLER	AL ALLOY SH	QQ-A-250/4	2024-T3	.020X3 1/8X14 1/4	NONE	88	
		LDW280-18100-13	E	FILLER	AL ALLOY SH	QQ-A-250/4	2024-T3	.190X3 1/8X14 1/4	NONE	88	
		LDW280-18100-11	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.071X4 5/8X16	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18100	A

SCALE NONE

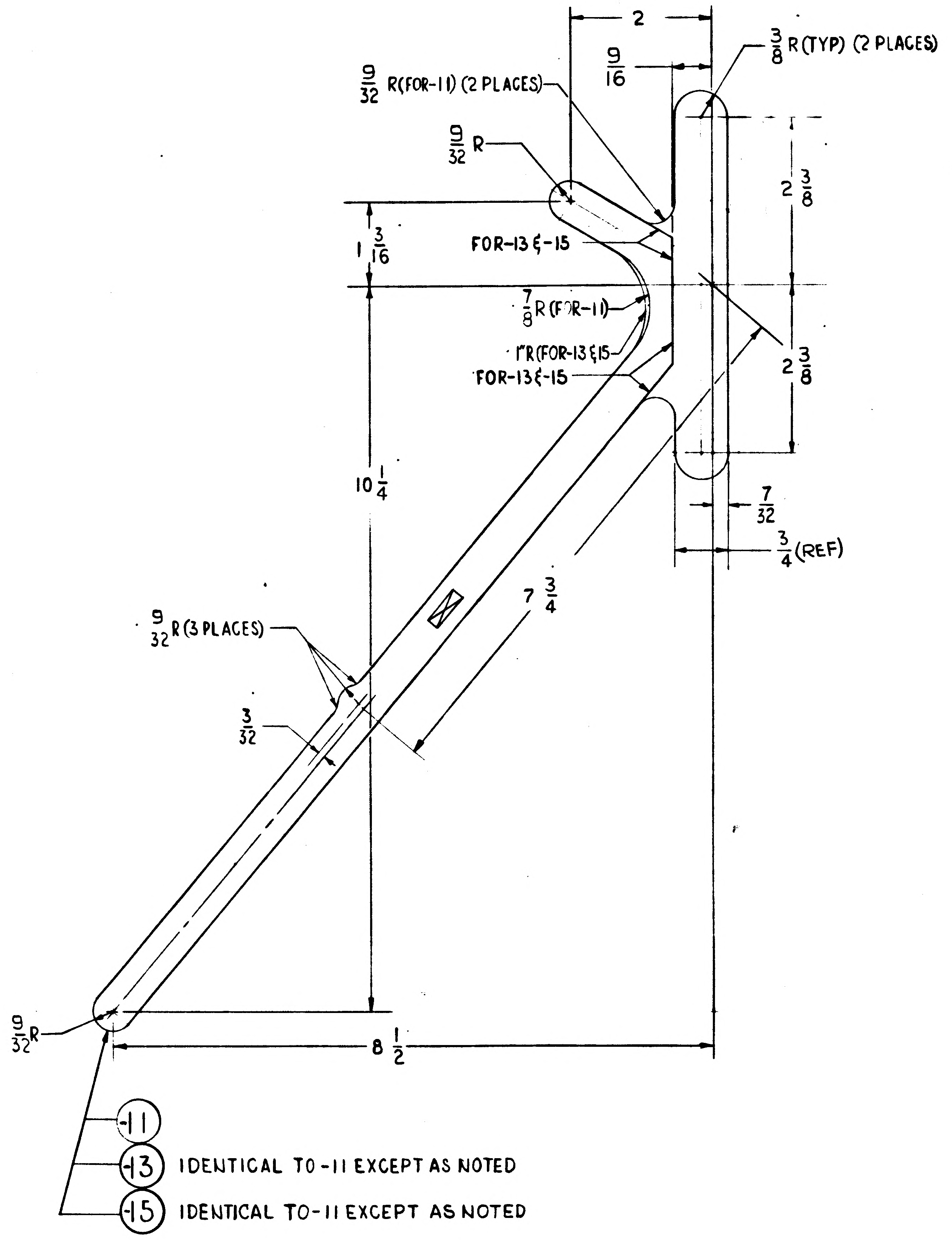
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS


2
9/16
3/8 R(TYP) (2 PLACES)
9/32 R(FOR-11) (2 PLACES)
9/32 R
2 3/8
1 3/16
FOR-13 & -15
7/8 R (FOR-11)
1"R(FOR-13 & 15
FOR-13 & -15
2 3/8
7/32
3/4 (REF)
10 1/4
7 3/4
9/32 R(3 PLACES)
3/32
9/32 R
8 1/2
-11
-13 IDENTICAL TO -11 EXCEPT AS NOTED
-15 IDENTICAL TO -11 EXCEPT AS NOTED

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-18100 A

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LEM	SIZE D	CODE IDENT NO. 26512	LDW280-18100	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

01 NAS 9-1100

H.G.
ENG 32.1 REV 3-65

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GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18100
EO NO. B1
CONTROL INFO NO. LM-2-2983

IN MODEL BLOCK FOR -11, -13 & -15 ADD LM-3(33) EFFECTIVITY

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	2

REASON FOR EO: PRODUCTION DRAWING CAPSTRIP DID NOT AGREE WITH INITIAL SWIP DRAWING REQUIREMENTS

DESCRIPTION OF EO: IN MOD/BLK, FOR -11, -13 & -15 ADDED LM-3(33) EFFECTIVITY

GAEC EO RELEASE: FR 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					caw	caw	RMC	
✓		NOT	REQD	DATE	12/15				11/10/66	11/10/66	11-14-66	11/14/66
REVISE DWG	RECORD EO	REWORK	SCRAP	-6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: DOUBLER~DESCENT STAGE R.H. INBOARD~AFT LOWER DECK
DRAWING NO.: LDW280-18100
EO NO.: B1

ISSUED BY LIAISON J. MALONEY 11/10/66 X3604 SECTION V.D.I. GROUP NO. 335 PL 35

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NAS 9-1100

LDW280-18101 A

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MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52791	LM-3(33)	8
LM	LDW280-52791	LM-2(32)	8
PART NO. LDW280-18101-23		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52791	LM-3(33)	6
LM	LDW280-52791	LM-2(32)	6
LDW280-18101-15			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52791	LM-3(33)	2 EA
LM	LDW280-52791	LM-2(32)	2 EA
PART NO. LDW280-18101-13,-14,-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52789	LM-3(33)	1 EA
LM	LDW280-52789	LM-2(32)	1 EA
LDW280-18101-25		50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52791	LM-3(33)	1 EA
LM	LDW280-52791	LM-2(32)	1 EA
PART NO. LDW280-18101-11,-17,-21		GAEC SCH NO. 50-2	

WORK PKG FUNCTION NO.110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00	3.00				
REV	A	A		A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A			
LAST DASH NO. USED	-25	PRIM NO. 207	JK(001) P-5	A-[illegible]	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/64 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	J. LANG 8-23-66	RELIABILITY	
LAYOUT BY	J. LANG 8-23-66		
CHECKED BY			
GR. LEADER	J. STRAKOSCH 8/24/66		
VEH DES INT	W. BISCHOFF 8/25/66		
STRUCTURES	W. HAUCK 8/26/66	PROJ ENGR	RM CARBEE 8/29/66
STRUCTURES	HILDERMAN 8/26/66	REL GROUP	C. BOTTI 9/10/66
WEIGHTS	L. GARCIA 9/1/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE-BEAM PANELS
ELECTRICAL BEAM SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18101	A
SCALE NONE		SHEET 1.00 OF 4	

②

SUPERSEDES LDW280-18101 NO CHG 9-10-66

ENG 77.1 12-65

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NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
								RETRACED	NO CHG LAST REV N C N. CIOFFI 5-5-67 ADDED SHEET 1.10.						
A	1	1.00, 1.10, 2.00 & 3.00						EO A1	IN FLD, B/M & MOD BLK ADDED -25. IN MOD BLK FOR -19, DELETED REQUIREMENT FOR NEXT ASSY LDW280-52789.	LM-2 LM-3		✓	N. CIOFFI 5-25-67		
	2	1.00 & 1.10						EO A2	IN MOD BLK FOR -15, (1) & -21 (3), N/A LDW280-54791, LM-4(34) THRU LM-6(36).	NOTED	NOT	REQD			
	3	1.00 & 1.10						EO A3	IN MOD BLK FOR -15 REVISED QTY, (6) WAS (3). IN FLD B/M & MOD BLK DELETED -17	LM-2 THRU LM-6		-17			
	4	1.00 & 1.10						LEO280-478	FOR DASH 15 & -21 ADDED LM-7 THRU LM-15 EFF.	NOTED	NOT	REQD			
	5	1.00 & 1.10						EO A5	REF EO A3 REINSTATED LDW280-18101-17, N/A LDW280-53791, LM-3 (33) & LDW280-52791, LM-2(32) QTY(1) EA.	LM-2 LM-3	✓				
	6	1.00 & 1.10					✓	LEO280-518	FOR DASH 15 & -21 DELETED LM-4(34) THRU LM-15(45) FOR NEXT ASSEMBLY LDW280-54791.	NOTED		✓			
	7	1.00 & 1.10					✓	EO A7	REF EO A5 IN MOD BLK FOR N/A ON LM-3 LDW280-52791 WAS LDW280-53791.	LM-3	✓				

CHG APPROVED

LTR	GROUP LDR	VEH. DES. INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18101	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18101-25	E		ANGLE	AL ALLOY SH	QQ-A-250/4	2024	.045 X 2 X 2	T42	88	
	-23						2024	.045 X 1 3/4 X 2 1/4	T42		
	-21						2024-T3	.040 X 1 3/4 X 2 1/2	NONE		
	-19						2024	.045 X 1 5/8 X 2	T42		
	-17						2024-T3	.036 X 2 1/8 X 2 1/4	NONE		
	-15			ANGLE			2024-T3	.036 X 2 X 2 1/4	NONE		
	-14			ZEE			2024	.050 X 2 X 2 1/2	T42		
	-13	E		ZEE			2024	.050 X 2 X 2 1/2	T42		
	LDW280-18101-11	E		ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 X 1 5/8 X 2 3/4	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T42	HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18101	A
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

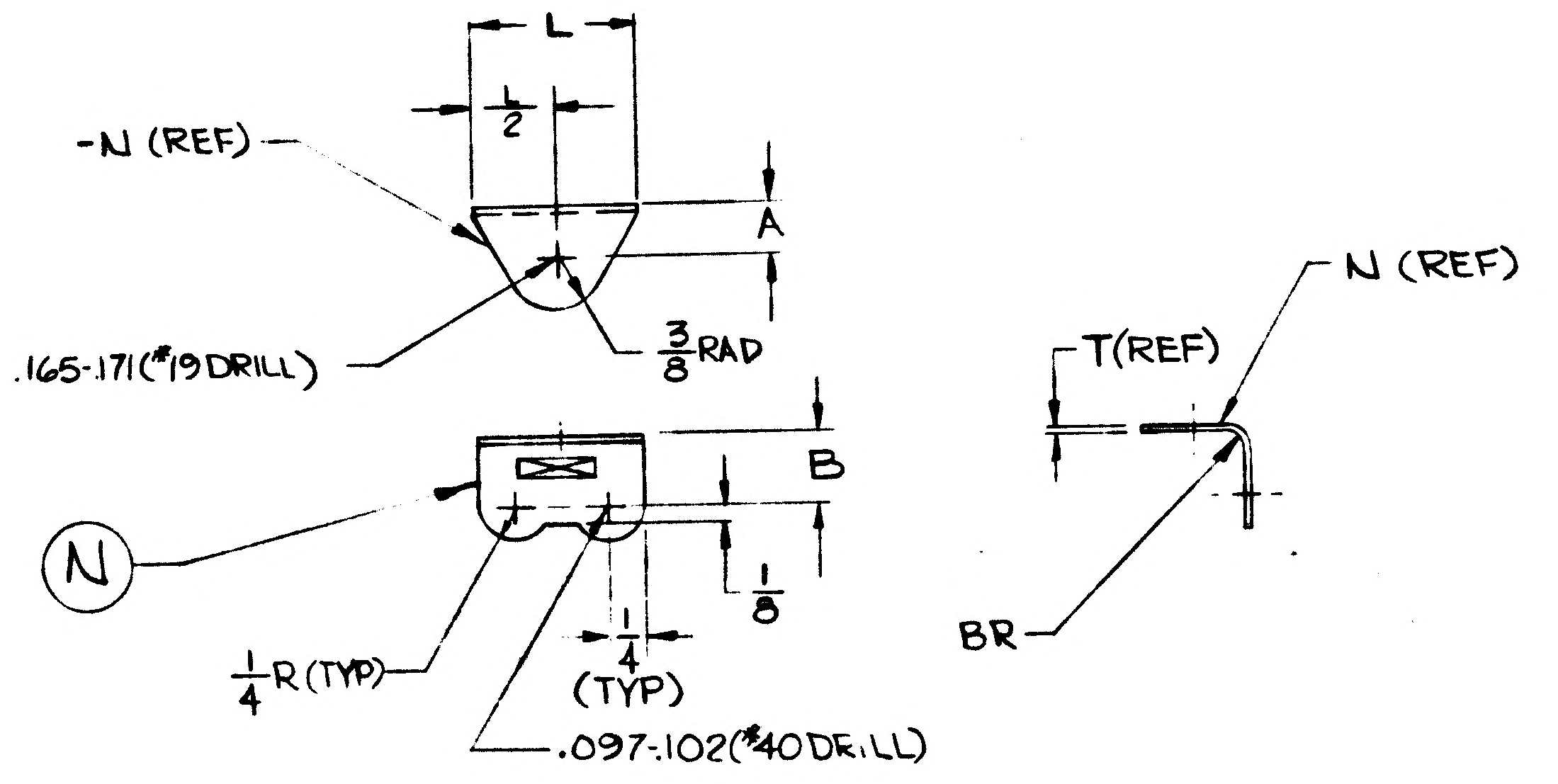
01

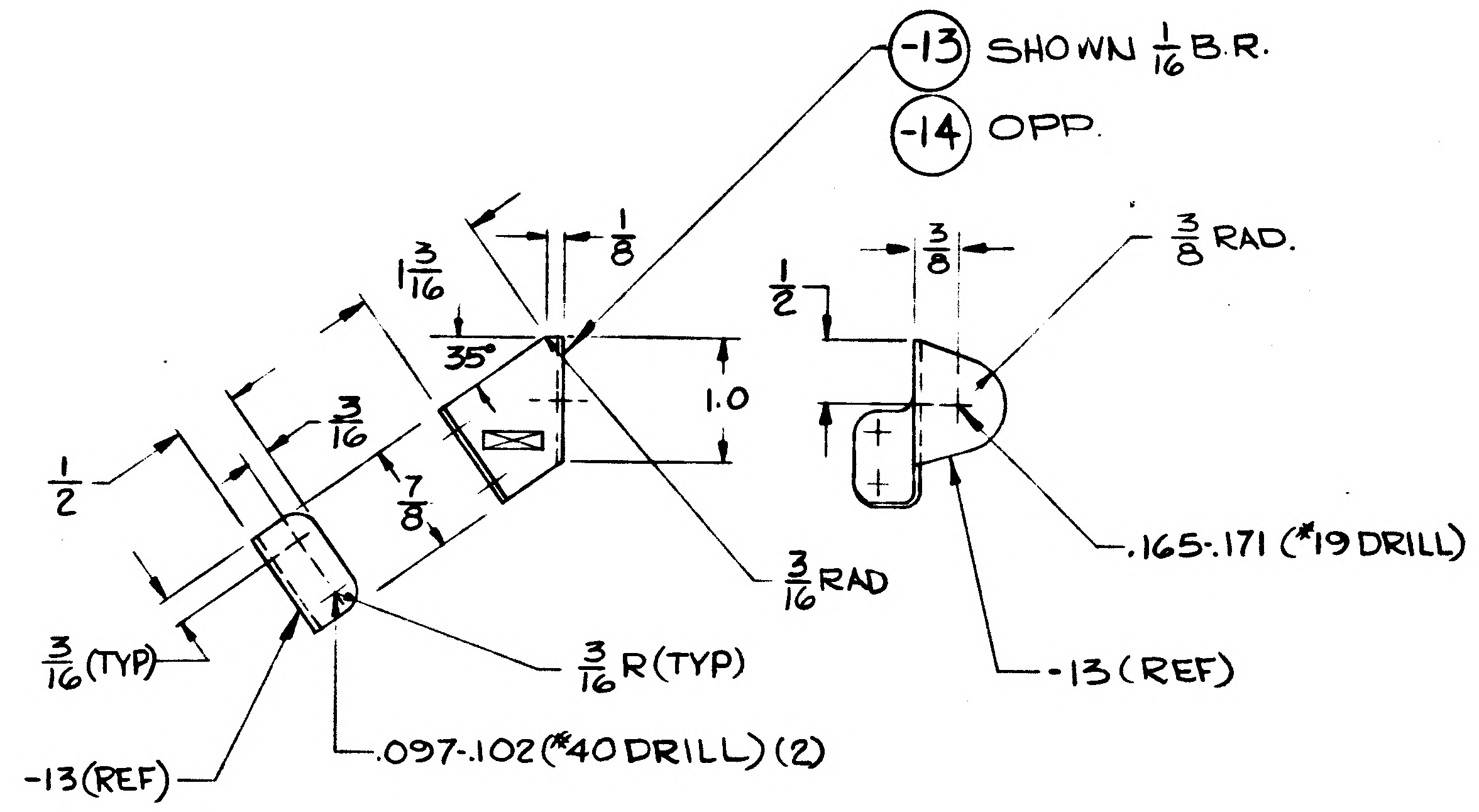
NAS 9-1100

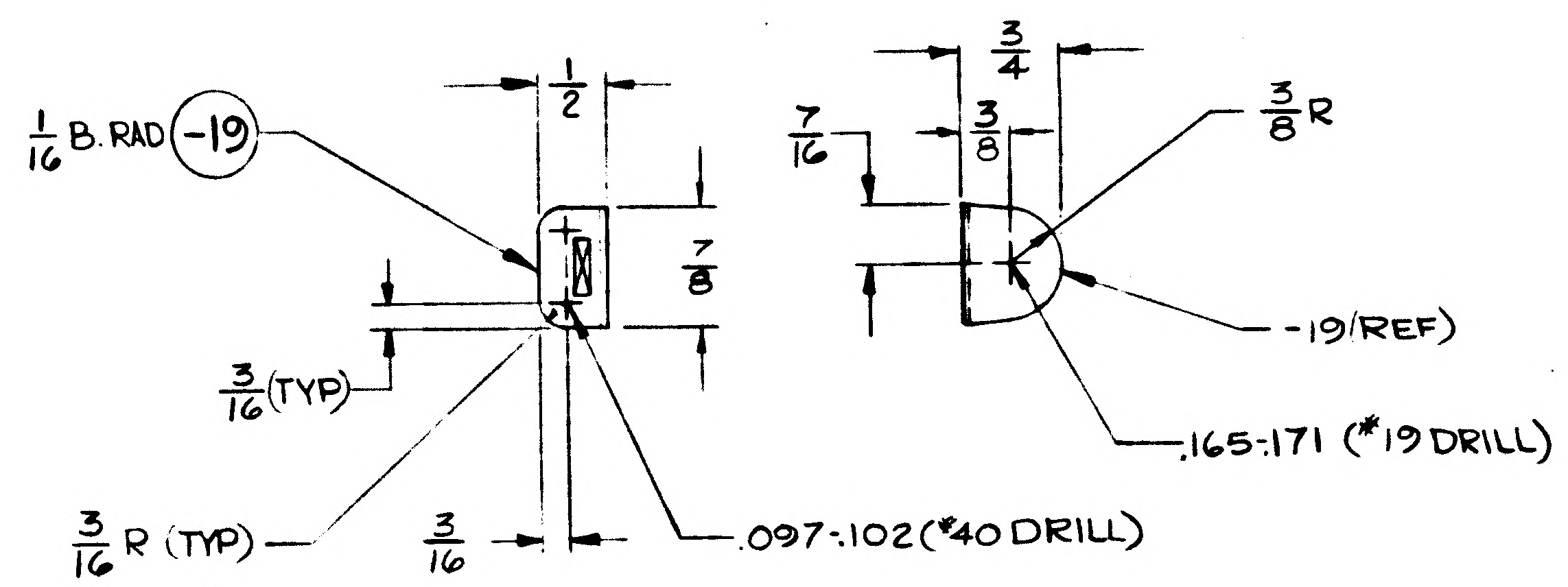
LDW280-18101 A

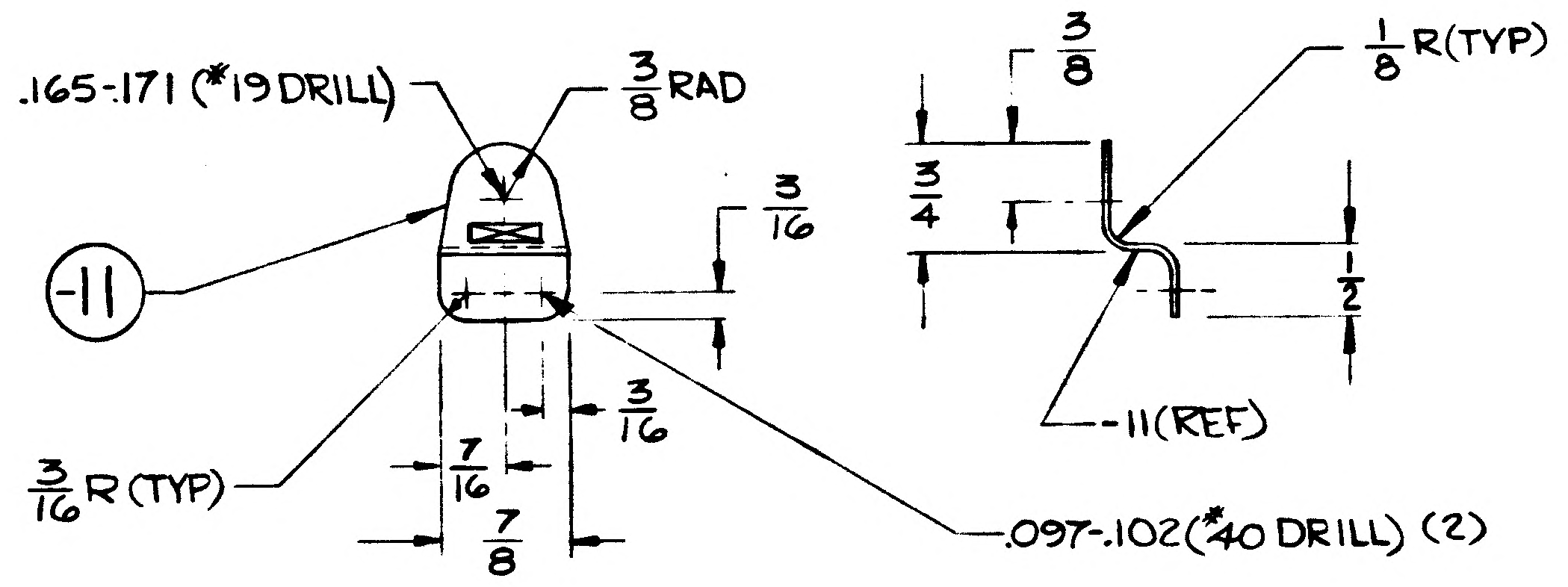
NOTE
1. NO TOOLING HOLE PERMITTED IN PARTS.

N PART NO.	L	B	A	T(REF)	BR
LDW280-18101-15	1.312	.500	.375	.036	.125
-7	1.125	.500	.375	.036	.125
-[illegible]	1.000	.500	.625	.040	.125
-23	1.000	.312	.375	.045	.062
Ⓐ1 -25	1.189	.438	.515	.045	.062


L
$\frac{1}{2}$
-N (REF)
A
.165-.171 (#19 DRILL)
$\frac{3}{8}$ RAD
N
B
$\frac{1}{8}$
$\frac{1}{4}$ R (TYP)
$\frac{1}{4}$ (TYP)
.097-.102 (#40 DRILL)
T(REF)
N (REF)
BR


-13 SHOWN $\frac{1}{16}$ B.R.
-14 OPP.
$1\frac{3}{16}$
$\frac{1}{8}$
35°
1.0
$\frac{3}{16}$
$\frac{1}{2}$
$\frac{7}{8}$
$\frac{3}{16}$ (TYP)
$\frac{3}{16}$ R (TYP)
$\frac{3}{16}$ RAD
-13 (REF)
.097-.102 (#40 DRILL) (2)
$\frac{1}{2}$
$\frac{3}{8}$
$\frac{3}{8}$ RAD.
.165-.171 (#19 DRILL)
-13 (REF)


$\frac{1}{16}$ B. RAD -19
$\frac{1}{2}$
$\frac{7}{8}$
$\frac{3}{16}$ (TYP)
$\frac{3}{16}$ R (TYP)
$\frac{3}{16}$
.097-.102 (#40 DRILL)
$\frac{3}{4}$
$\frac{7}{16}$
$\frac{3}{8}$
$\frac{3}{8}$ R
-19 (REF)
.165-.171 (#19 DRILL)


.165-.171 (#19 DRILL)
$\frac{3}{8}$ RAD
-11
$\frac{3}{16}$
$\frac{3}{16}$ R (TYP)
$\frac{7}{16}$
$\frac{7}{8}$
$\frac{3}{16}$
.097-.102 (#40 DRILL) (2)
$\frac{3}{8}$
$\frac{3}{4}$
$\frac{1}{8}$ R (TYP)
$\frac{1}{2}$
-11 (REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18101	A
	SCALE - FULL		SHEET 3	

ENG 73-1 6-64

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NAS 9-1100

A G
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 518
CONTROL INFO NO. LM-2-3386

IN MODEL BLOCK DELETE LM-4(34) THRU LM-15(45) EFFECTIVITY FROM THE DRAWINGS AND THEIR NOTED DASH NUMBERS WHICH ARE LISTED BELOW FOR NEXT ASSEMBLY LDW280-54791 ONLY.

DRAWING NUMBER	DASH NO.	CHANGE NO.	TITLE	EFFECTIVITY
✓ LDW280-17999	-11	A7	SEE DRAWING	**
✓ -18035	-25	B1	↑	**
✓ -18038	-11	B1		**
✓ -18052	-11 & -15	B3		**
✓ -18064	-13	A10	↓	**
✓ LDW280-18101	-15 & -21	A6	SEE DRAWING	**

** DENOTES LM-4(34) THRU LM-15(45) EFFECTIVITY
* DENOTES APPLICABLE DASH NUMBERS IN DESCRIPTION OF EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ 2

REASON FOR EO: PARTS ARE NOT REQUIRED. USAGE RESTRICTED TO EARLIER VEHICLES

DESCRIPTION OF EO: FOR DASH *, DELETED LM-4(34) THRU LM-15(45) FOR NEXT ASSEMBLY LDW280-54791.

GAEC EO RELEASE: JK c

02131

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE
✓			✓	-1-

	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
				3/17/67	3/16/67	3/ /67	3/18/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 518

ISSUED BY LIAISON J. MALONEY 3/16/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

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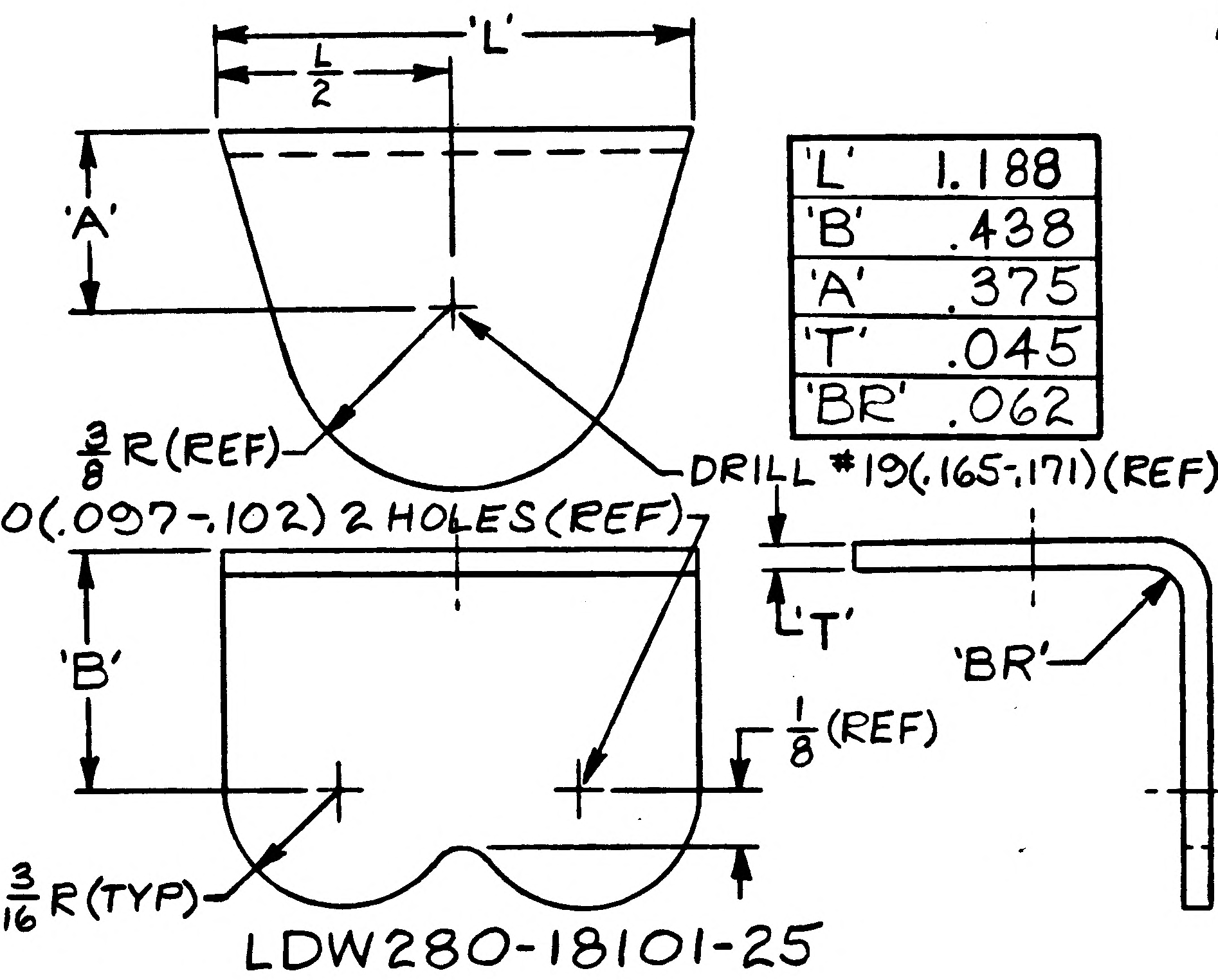
DWG. NO. LDW280-18101
EO NO. A1
CONTROL INFO NO. LM-2-2942



'L'	1.188
'B'	.438
'A'	.375
'T'	.045
'BR'	.062

LDW280-18101-25

IN FLD/DWG, B/M & MOD/BLK
ADD -25
QQ-A-250/4, 2024
PROCESS: T42 (MIL-H-6088)
FINISH: #88(LSP-14-9030)
NEXT ASSY: LDW280-52789
1 REQD/MODULE

IN MOD/BLK FOR -19, DELETE
REQUIREMENT FOR NEXT ASSY
LDW280-52789

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: INTERFERENCE OF EXISTING CLIP AT ASSY WITH RIVET PATTERN

DESCRIPTION OF EO: IN FLD, B/M & MOD/BLK ADDED -25
IN MOD/BLK FOR -19, DELETED REQUIREMENT FOR NEXT ASSY LDW280-52789

Ⓡ GAEC EO RELEASE: GG

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
		LM-3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-19

APPROVED BY	JAS				caw	caw		
DATE	11/15				10/27/66	10/27/66	10-28-66	
	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE-DESCENT STAGE-BEAM PANELS ELECTRICAL LINES SUPPORT	LDW280-18101	A1

ISSUED BY LIAISON J. MALONEY X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

HG
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18101 EO NO. A2
CONTROL INFO NO. LM-2-2965

IN M/B EXTEND EFFECTIVITIES AS SHOWN

FOR -15, N/A LDW280-54791, LM-4 (34), LM-5 (35), LM-6 (36), 3 REQD/MOD

FOR -21, N/A LDW280-54791, LM-4 (34), LM-5 (35), LM-6 (36) (1) REQD/MOD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓

REASON FOR EO: DETAILS REQD FOR ELECT LINES INSTL.

DESCRIPTION OF EO: IN M/B, FOR -15, (1) & -21 (3), N/A LDW 280-54791, LM-4 (34) THRU LM-6 (36)

GAEC EO RELEASE: LE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		LM-5(35)	
		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD REWORK SCRAP

APPROVED BY					caw	caw	RMC	
DATE	11/5				11/2/66	11/2/66	11-3-66	11/2/66
-6-	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY: C
DRAWING TITLE: ZEE-DS-BEAM PANELS-ELECT LINES-SUPT
DRAWING NO.: LDW280-18101
EO NO.: A2

ISSUED BY LIAISON C. FARLEY X3604 11/2/66 SECTION V.D.I. GROUP NO. 335 PL 35
EMF

01 NAS 9-1100

H.G. *

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18101 EO NO. A3
CONTROL INFO NO. LM-2-3007

IN MOD/BLK FOR -15, REVISE QTY FROM 3 REQD TO 6 REQD

IN FLD/DWG, B/M & MOD/BLK DELETE -17

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ 2

REASON FOR EO: ADDITIONAL CLAMPING REQUIREMENTS

DESCRIPTION OF EO: IN MOD/BLK, FOR -15 REVISED QTY, 6 WAS 3
IN FLD, B/M & MOD/BLK DELETED -17

GAEC EO RELEASE: C 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32) THRU	
		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG J; RECORD EO
DISPOSITION OF PARTS: REWORK ; SCRAP -17
APPROVED BY: DATE 12/15; -1- VD1

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
			11/15/66	11/15/66	11-16-66	11-15-66

PRIORITY: C
DRAWING TITLE: ZEE~DESCENT STAGE~BEAM PANELS ELECTRICAL LINES SUPPORT
DRAWING NO.: LDW280-18101
EO NO.: A3

ISSUED BY LIAISON J. MALONEY 11/15/66 X3604 SECTION V.D.I. GROUP NO. 35 PL 335

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GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEQ280
EO NO. 478
CONTROL INFO NO. LDW280A5543

* TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45) QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280M17179	B1	SEE DRAWING
M17193	A3	
M17207	B5	
M17272	B1	
M17282	B1	
M17299	B1	
M17301	B4	
M17331	D1	
M17360	A7	
M17488	B1	
M17502	B1	
M17506	A1	
M17641	A3	
-17131	C4	
-17162	D1	
-17231	B5	
-17362	B2	
-17375	B3	
-17661	A1	
-17742	A1	
-17969	B1	
-18062	B2	
-18101	A4	
-18118	A1	
-23689	A1	
-23691	B3	
-23694	B1	
-23722	A4	
-54516	B4	
LDW280-		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D
APPROVED BY / DATE: 6 V.D.I. 2/15/67; STRESS GROUP 2/15/67; PROJ ENGRG 2-16-67; GOVT 2-17-67
PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEQ280
EO NO. 478

ISSUED BY M. GREY / J. STRAKOSCH X-4453 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

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NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18101
EO NO. A5
CONTROL INFO NO. LM-5-12514

THIS EO IS A REVISION OF EO A3
LDW280-18101-17 TO BE REINSTATED ON DWG AS FOLLOWS:

LDW280-18101-17	N/A LDW280-53791	LM-3 (33)	QTY 1
	LDW280-52791	LM 2 (32)	QTY 1

RELEASED BY LIAISON

5 C

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: -17 TO BE USED FOR ADDITIONAL APPLICATION ON N/A:

DESCRIPTION OF EO: REF EO A3
REINSTATED LDW280-18101-17 N/A LDW280-53791 LM-3(33) & LDW280-52791, LM-2 (32) QTY (1) EA.

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
		LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

						STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY									
DATE	3/8/67					3/2/67	3-2-67	3-8-67	3-2-67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER					

PRIORITY: C
DRAWING TITLE: ZEE-DS-BEAM PANELS ELECT LINES-SUPT.
DRAWING NO.: LDW280-18101
EO NO.: A5

ISSUED BY LIAISON, P. HUSTED, 6217 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18101

EO NO. A7

CONTROL INFO NO. LM-5-1283

THIS EO IS A REVISION OF EO A5

IN M/B:

LDW280-18101-17, N/A LDW280-52791, LM-3 (33), QTY (1)
LDW280-52791, LM-2 (32), QTY (1)

WAS:

LDW280-18101-17, N/A LDW280-53791, LM-3 (33), QTY (1)
LDW280-52791, LM-2 (32), QTY (1)

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
CORRECT N/A No. FOR LM-3	REF EO A5 IN M/B FOR N/A ON LM-3 LDW280-52791 WAS: LDW280-53791	C JL

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								DAM	
DATE	7/6/67				4/29/67	4/26/67	5-4-67	4-14-67	
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY: C

DRAWING TITLE: ZEE - DS - BEAM PANELS ELECT LINES - SUPT.

DRAWING NO. LDW280-18101

EO NO. A7

ISSUED BY LIAISON, P. HUSTED, 6216 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18102 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52789	LM-3(33)	1
LM	LDW280-52789	LM-2(32)	1

PART NO LDW280-18102-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28658	LTA-8(18)	3
LM	LDW280-28657	LTA-8(18)	1

PART NO. LDW280-18102-17 — GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52789	LM-3(33)	6
LM	LDW280-52789	LM-2(32)	6

PART NO. LDW280-18102-15 — GAEC SCH NO. 50

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52789	LM-3(33)	1
LM	LDW280-52789	LM-2(32)	1

PART NO. LDW280-18102-13 — GAEC SCH NO. 50

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		1.10		2.00		3.00	
REV	A		A		A		A	
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED	—	GRUMMAN REL INFO A	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-19	-207	MP-14A 7/29/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	J.LANG, J.BUKOSKI		
LAYOUT BY	J.LANG, J.BUKOSKI		
CHECKED BY			
GRP LEADER	J.STRAKOSCH 8-27		
VEH DES INT			
STRUCTURES	FEB	PROJ ENGR	R.M.CARBEE 8-30
STRUCTURES	HILDERMAN 8-29	REL GROUP	BOTTI 9-10-66
WEIGHTS	L.GARCIA 9-2-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT-STAGE ~ UPPER DECK
ELEC. LINES SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18102 | A
SCALE NONE | SHEET 1.00 OF 4

SUPERSEDES LDW280-18102 LAST REV "NO CHG" 9-10-66

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
								RETRACED NO	CHG, LAST REV "NO CHG L. DIXON 5-17-67 LOFTED DWG WAS DIMENSIONED DWG, ADDED SH 1.10						
A	1	1.00, 1.10 2.00 & 3.00					✓	EOA1	REMOVED -11 & ADDED -15 FOR LM-2 & LM-3 N/A LDW280-52789, 7 REQ'D PER MODULE	LM-2 & -3		-11	L. DIXON 5-17-67		
	2	1.10 & 2.00						EOA2	IN B/M FOR -13, 2024-0 PROCESS T42 WAS 2024-T3		✓				
	3	1.00, 1.10 2.00 & 3.00						EOA3	ADDED -17	LTA-8	NOT	REQD			
	4	1.00, 1.10 2.00 & 3.00						EOA4	IN FLD, B/M & MOD. BLK, ADDED -19. REVISED MOD BLK FOR -15 (6 REQ'D) WAS (7 REQ'D)	LM-2 & -3		-15			
	5	1.10 & 3.00							DRILL #30 (.065-.071) SHOULD BE .065-.071 (#51 DRILL)	NOT REQD	NOT	REQD			

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS
A		7/25/67	6/25		

ENG 77.16 3-66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18102	A

SCALE NONE SHEET 1.10

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18102-19	E	CLIP	AL. ALLOY SH	QQ-A-250/4	2024-T3	.040 × 3 × 3	NONE	88	
		LDW280-18102-17	E	ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 × 2 × 2	NONE	88	
		LDW280-18102-15	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 × 3 × 3	NONE	88	
		LDW280-18102-13	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024	.040 × 5 × 7	T42	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T42	AL. HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18102	A

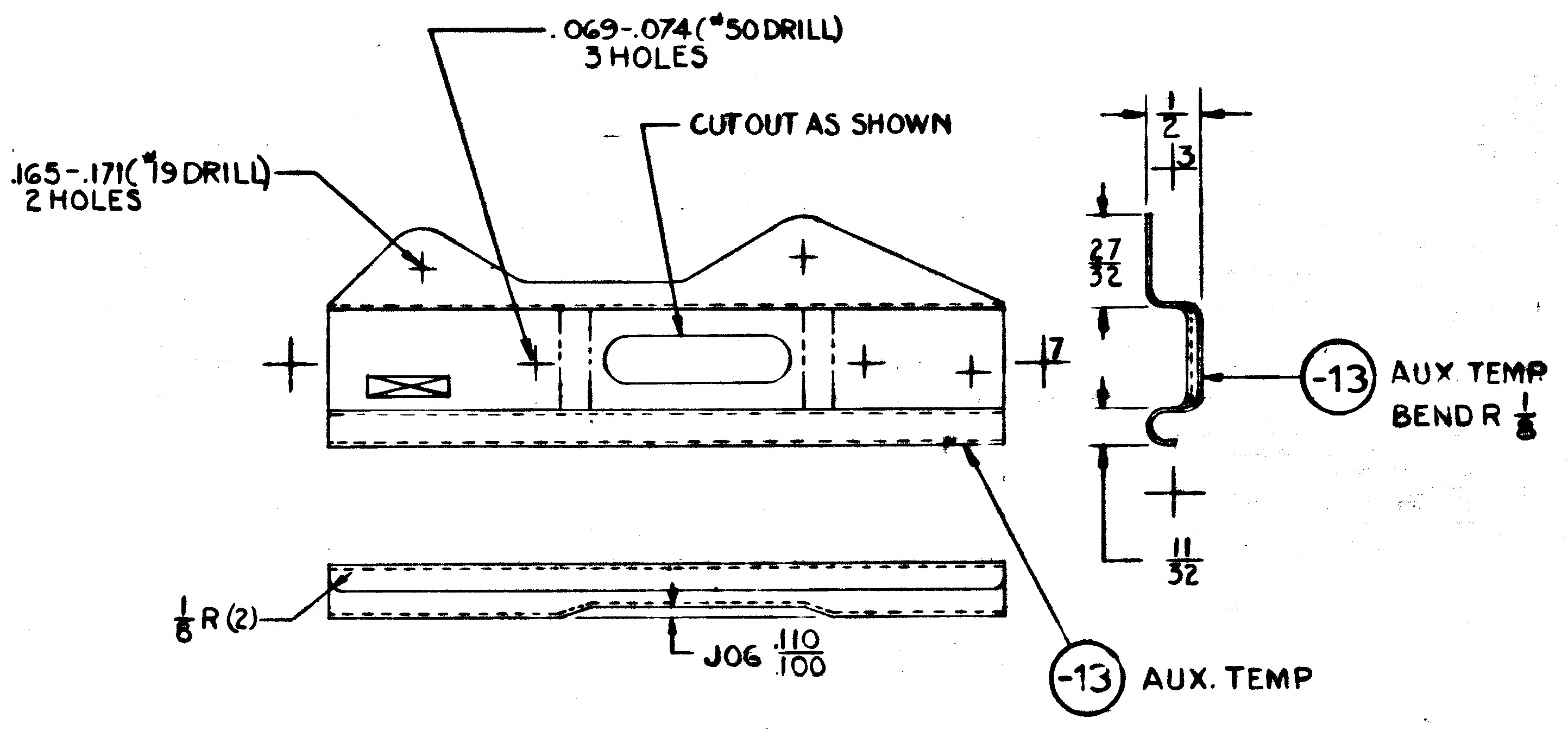
SCALE NONE
SHEET 2.00

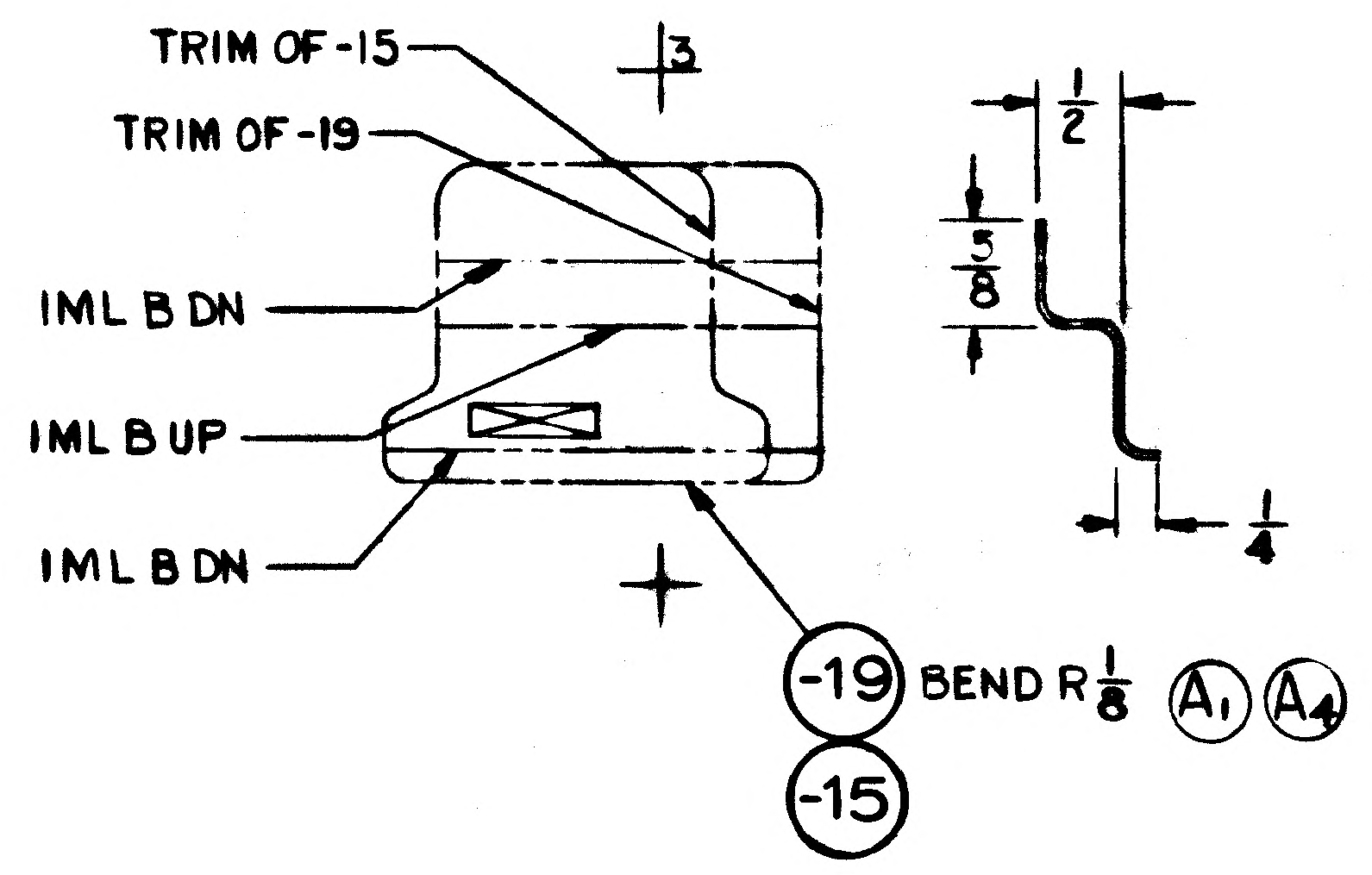
Ⓐ

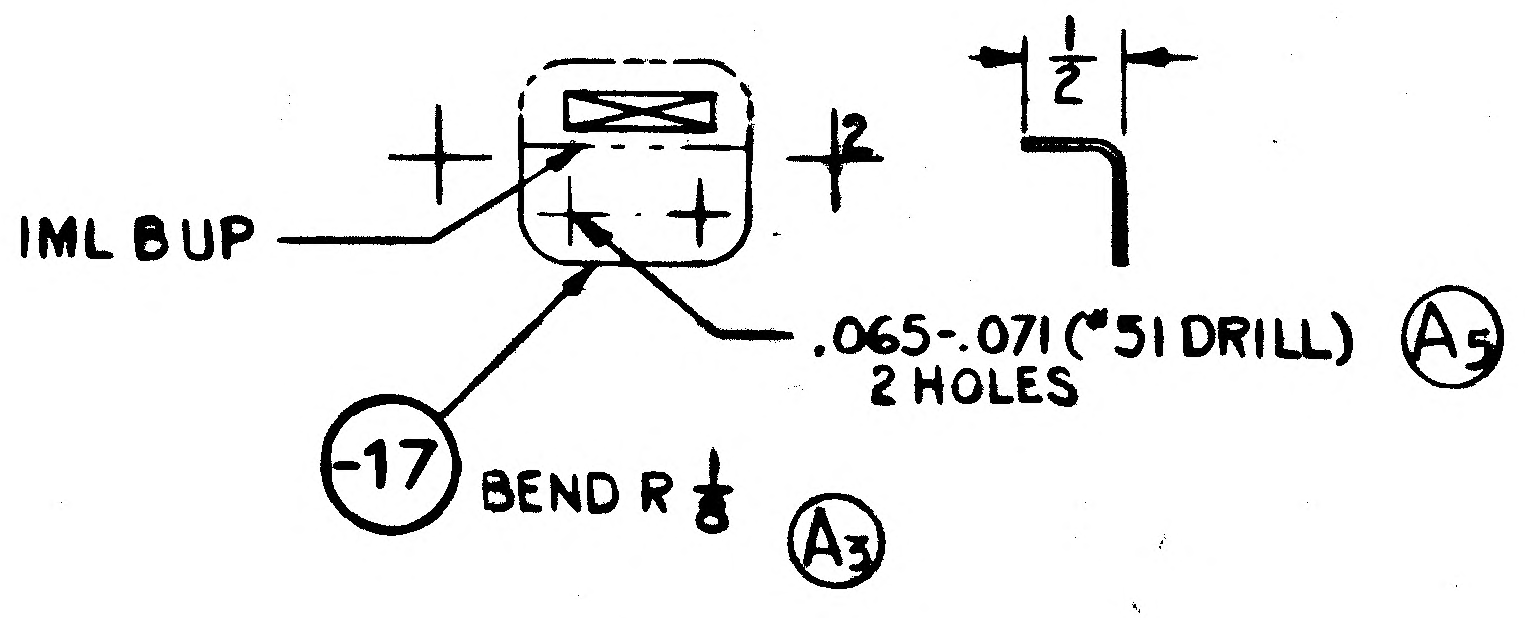
ENG 77.2 7-65

01

NAS 9-1100


.069-.074 (#50 DRILL) 3 HOLES
CUTOUT AS SHOWN
.165-.171 (#19 DRILL) 2 HOLES
7
1/2
3
27/32
11/32
-13 AUX TEMP BEND R 1/8
1/8 R (2)
JOG .110/.100
-13 AUX. TEMP


TRIM OF -15
TRIM OF -19
3
IML B DN
IML B UP
IML B DN
1/2
5/8
1/4
-19 BEND R 1/8 A1 A4
-15


IML B UP
2
1/2
.065-.071 (#51 DRILL) 2 HOLES A5
-17 BEND R 1/8 A3

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .000 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READ.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18102	A
	SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1 K2

01 NAS 9-1100

ENG 32.1 REV 3-65 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18102	EO NO.	A1
CONTROL INFO NO.	LDW280A-0262		

IN F/D & B/M, REMOVE -11 & ADD -15. -15 REPLACES -11.
-15 IDENTICAL TO -11, EXCEPT THICKNESS TO BE .040,
& BR TO BE 1/8.
N/A & QTY NOT AFFECTED

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

2

REASON FOR EO: HIGHER GAGE REQ BY STRESS

DESCRIPTION OF EO: REMOVED -11 & ADDED -15 FOR LEM 2 & 3
N/A LDW 280-52789 7 REQ/MOD

GAEC EO RELEASE: FR 9/14/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	LEM 3 (-33)		
LEM	LEM 2 (-32)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-11

APPROVED BY	JAB	[illegible]			NM		RWC	[illegible]
DATE	9/9/66	9/19/66			9/10/66		9-14	9/13/66
9-8-66	VDI	~~SUPPORT~~ MFG	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP-D/S-UPPER DECK-ELEC LINES SUP	LDW280-18102	A1

ISSUED BY J. LANG J. BUKOWSKI / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35

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NAS 9-1100

ENG 32.1 10-63

H.G

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18102 | EO NO. A2
CONTROL INFO NO. LM-2-2785

IN B/M

REVISE PROCESSING FOR -13 TO BE
AL. ALY SHEET 2024-0, PROCESS T42 (THICKNESS AND
BEND RADII REMAIN THE SAME.)
WAS 2024-T3.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO
TO FACILITATE MANUFACTURE
(REF) RTE 02131-186

DESCRIPTION OF EO
IN B/M FOR -13
2024-0, PROCESS T42 WAS 2024-T3.

(E) GAEC EO RELEASE

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 2 (32)	
		LM 3 (33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JB				CAW	CAW	RMC (E)	
DATE	10/8				9-24-66	9-24-66	9-27	9/..66
9-18-66	VDI		RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C2	CLIP - D/S - UPPER DECK ELEC LINES SUP	LDW280-18102	A2

ISSUED BY LIAISON: G. MARTELL x3604 GROUP VEH DES INT DEPT 335 PL 35 EMF

01 NAS 9-1100

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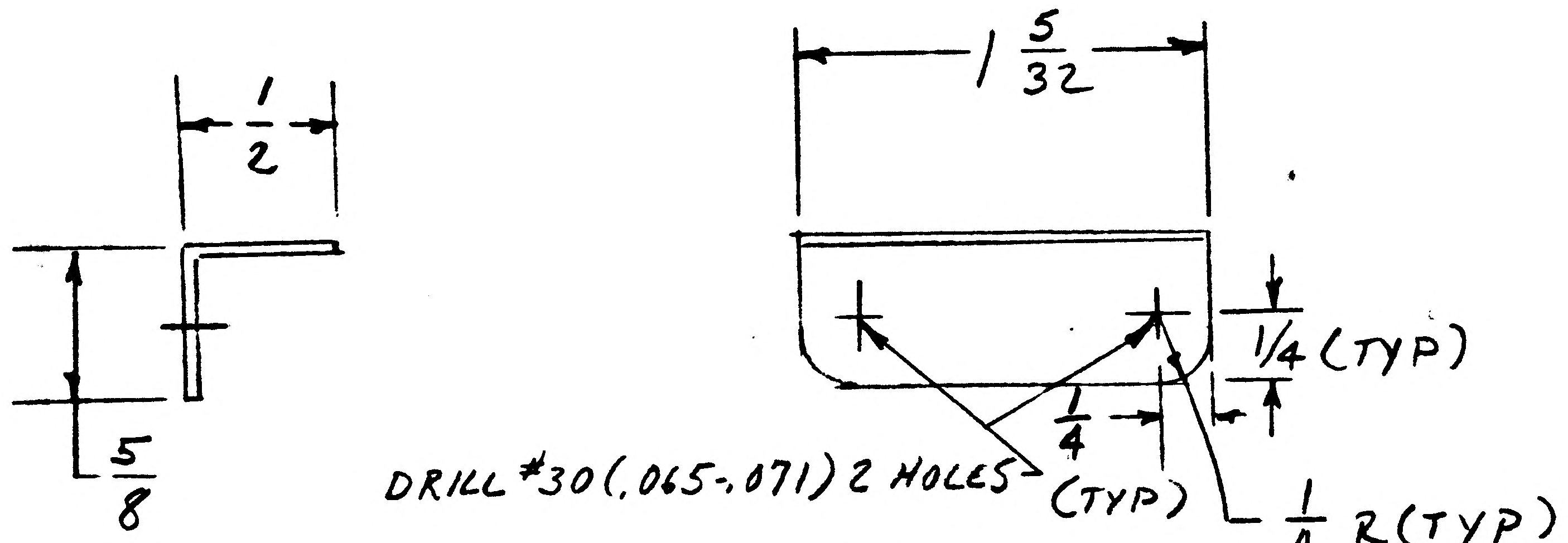
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18102		EO NO. A3	
CONTROL INFO NO. LM 5-9441			



N/A LDW280-28657 - 1 REQ'D
LDW280-28658 - 3 REQ'D

ADD:
LDW280-18102-17
MAKE FROM 2024-T3 AL.ALY.SH.T. (.040)
BR 1/8 QQ-A-250/4 FIN 88 I&T=E

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	(E) GAEC EO RELEASE 5 4
INTERFERENCE WITH FUEL LINES	ADDED -17	

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			~	WJH	CH	RMC (WP)	
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		NOT	RQRD	DATE	10/21/66			~	10/21/66	10-21	10-21-66	10-22-66
LM		LTA-8(18)		REVISE DWG	RECORD EO	REWORK	SCRAP	10-21-66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIPS D/S STANDOFF & ELECT LINES SUPT.	LDW280-18102	A3

ISSUED BY D.RAGAS/W TRAUT x 6454 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

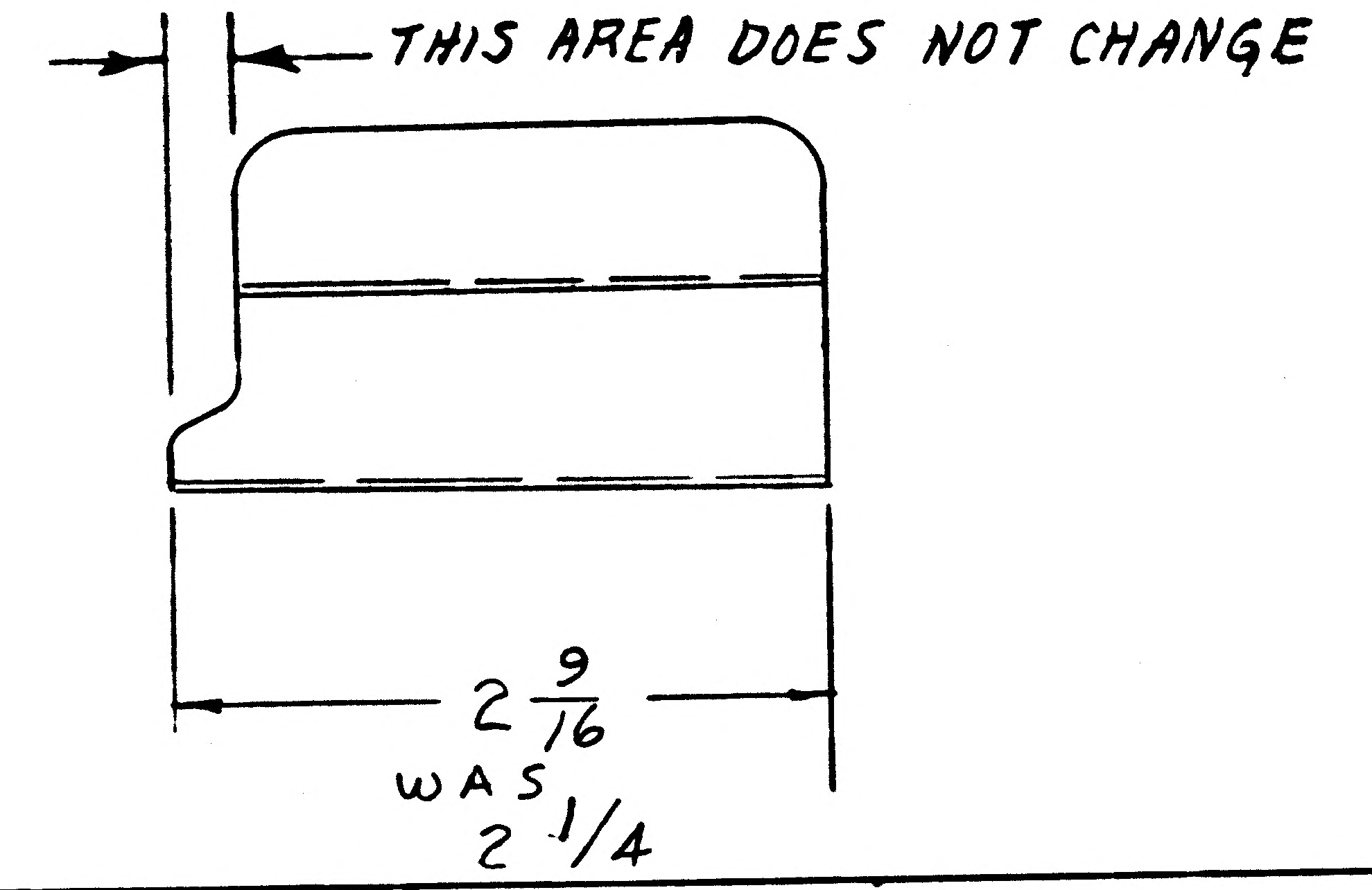
ENG 3251 RELEASED BY LIAISON

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 -18102		EO NO. A4	
CONTROL INFO NO.	LM 5-11924		

IN F/D & B/M ADD -19 AS SHN (IDENT TO -15 EXCEPT AS NOTED)

IN MOD BLK
ADD -19 N/A LDW280-52789 - 1 REQD/MOD - I&T=E
REVISE -15 = 6 REQD WAS 7 REQD



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO
TO FACILITATE INSTL OF BLKT STRAPS	IN F/D B/M & M/B ADDED -19 REVISE M/B FOR -15 (6 REQD) WAS (7 REQD)

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2(32) LM3 (33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			~	PBB	CH		
✓			-1,	DATE	2/27/67			~	2/28/67	2-27	3-6-67	3-1-67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S - UPPER DECK - ELECT SUPT	LDW280-18102	A4

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO. 335 PL 5

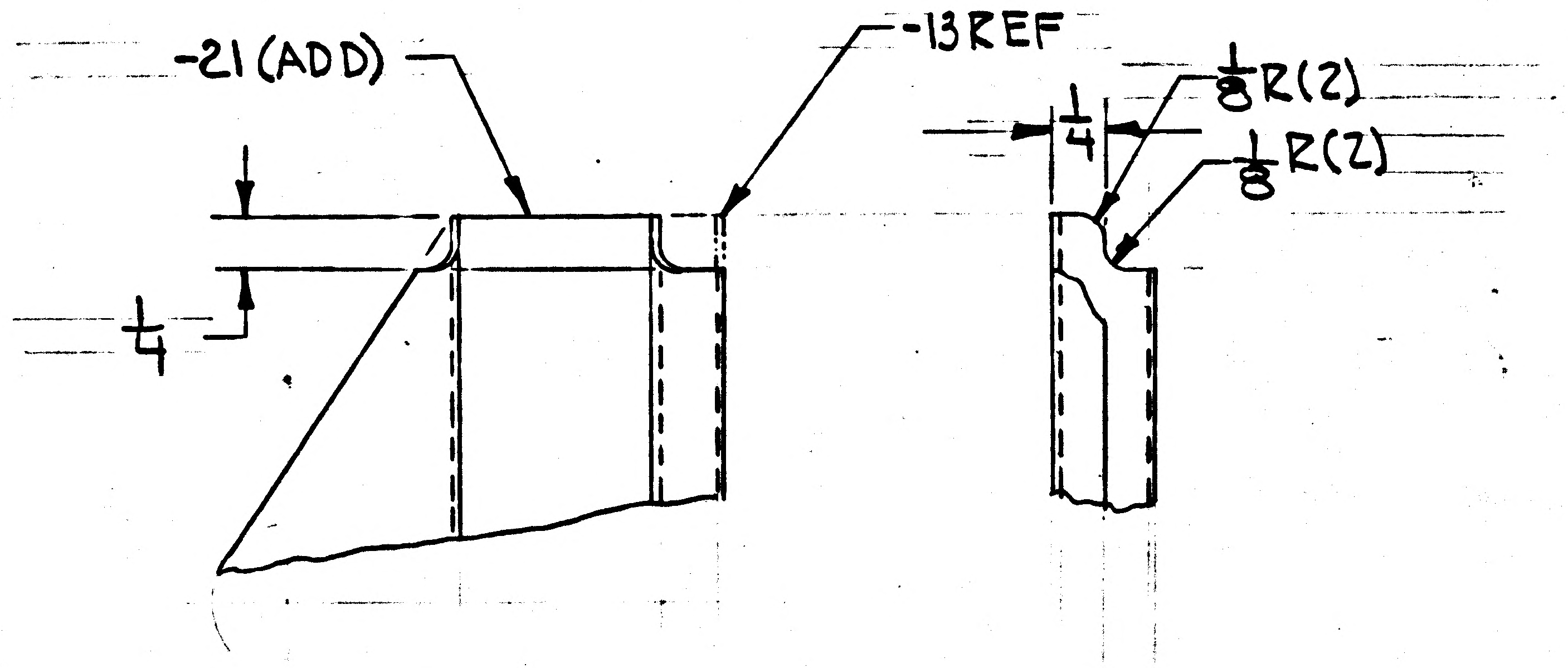
01 NAS 9-1100

ENG 32.1 3-65 **FITH** B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG NO. LDW280-18102		EO NO.	B1
CONTROL INFO NO. LDW280A 8248			

IN L/M RESTRICT-13 FOR USE ON LM-2(32) ONLY
IN F/D & LM ADD-21 IDENTICAL TO-13 EXCEPT AS SHOWN
EFF FOR-21 LM-3(33) 1 REQD N/A LDW280-52789



DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1244

REASON FOR EO: INTERFERENCE WITH FITH SHIELD

DESCRIPTION OF EO: RESTRICTED-13. WAS USED ON LM-2 & LM-3
ADDED-21

GAEC EO RELEASE: JK 7/31/7 C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	7/28/67			7/28/67	7/29/67		7/28	7/31/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S UPR DECK ELEC LINES SUPT	LDW280-18102	B1

8/1
ISSUED BY G. ZEMAN/J. STRAMOSCH SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18102
EO NO. B2
CONTROL INFO NO. LDW280B1517

ON-17 REMOVE N/A LDW280-28657 (1) REQ'D/MOD EFF LTA-8(18)

DETAIL SPEC REQ	✓	CL II ENGRG CHG		CL I ENGRG CHG	

⑤

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO AGREE WITH CDR LIST	ON-17 REMOVED N/A LDW280-28657 (1) REQ'D/MOD EFF LTA-8(18)	VK 1/23/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQD

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	1/23/68			1/22/68	1/23/68		1/23/68	1/25

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	CLIP-D.S.-UPPER DECK-ELEC. LINES SUPPORT	LDW280-18102	B2

ISSUED BY R.STOBE/P.THORJUSEN (EXT 1153) SECTION V.DI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18103

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LEM	LDW280-25811	LTA-5 (15)	2 EA.
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18103-15 & -19		GAEC SCH NO.	

LEM	LDW280-25811	LTA-5 (15	1 EA.
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18103-11, -13, -14 & -17.		GAEC SCH NO. 502	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED C
LAST DASH NO. USED -19
GRUMMAN REL INFO
PRIM NO. VE(001)
MP-8-24-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .02 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY
LAYOUT BY A. CINO 8/16/66
CHECKED BY
GR. LEADER 8/18/66
VEH. DES. INT. 8/19
STRUCT. NM 8-19-66
STRUCT. Alderman 8/19
WEIGHTS 8/26
RELIABILITY
PROJ ENGR R.M. Carbee 8/22
REL GROUP 8-29-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ FWD. END BULKHEAD
THERMAL REFERENCE MODULE

SIZE B
CODE IDENT NO. 26512
LDW280-18103
SCALE NONE
SHEET 1.00 OF 3

30

ENG 77.1 12-65

C.D.R. 8-26-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18103-19	E	FILLER	AL ALY SH	QQ-A-250/4	2024-T3	.063 x 3/4 x 1 1/2	NONE	88	
								-17	E	PLATE	↕	↕	↕	.063 x 4 1/2 x 10 1/2	↕	↕	
								-15	E	PLATE				.063 x 3 1/2 x 37 1/2			
								-14	E	ANGLE				.063 x 3 1/2 x 3 1/2			
								-13	E	ANGLE				.063 x 3 1/2 x 3 1/2			
								LDW280-18103-11	E	ANGLE	AL ALY SH	QQ-A-250/4	2024-T3	.063 X 6 x 12	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18103

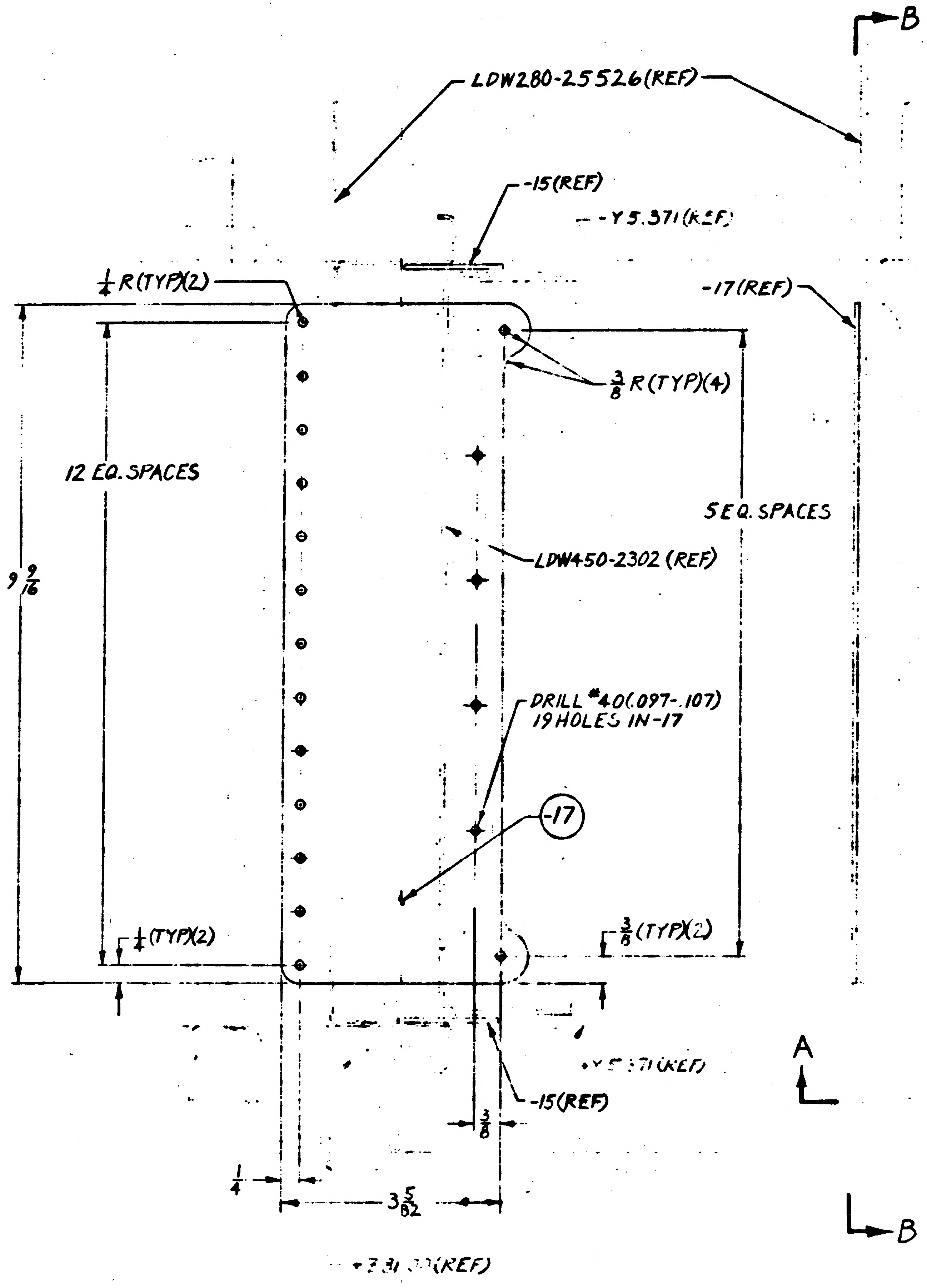
SCALE NONE

SHEET 2.00

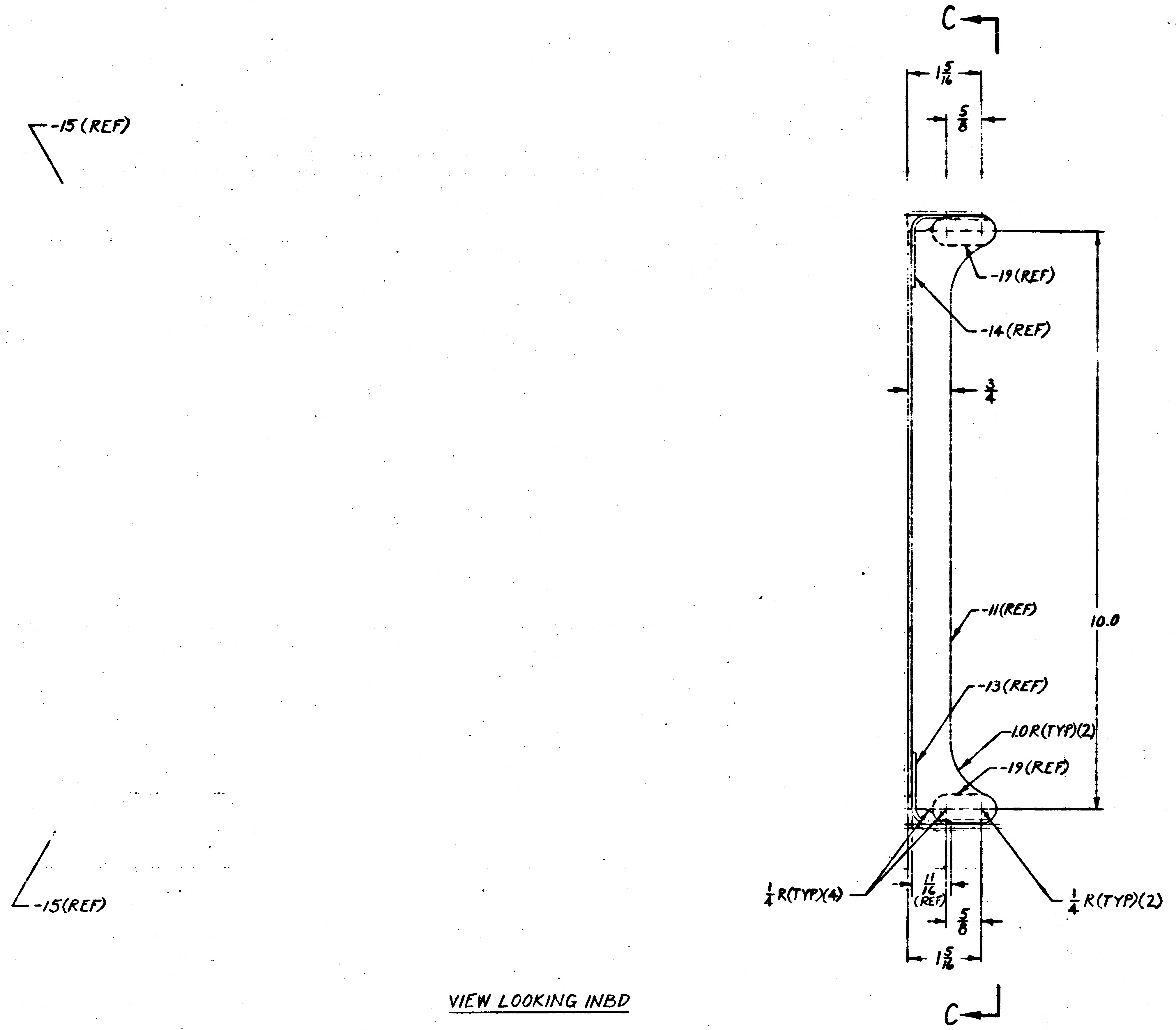
ENG 77.2 7-65

01

NAS 9-1100

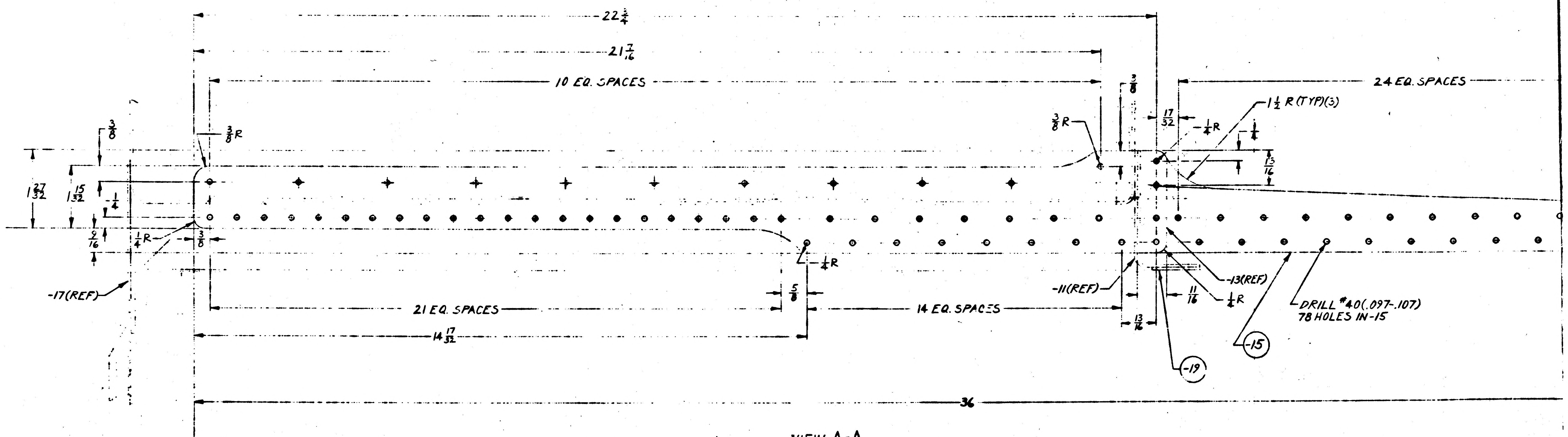

B
LDW280-25526(REF)
-15(REF)
Y5.371(REF)
-17(REF)
¼ R(TYP)(2)
⅜ R(TYP)(4)
12 EQ. SPACES
5 EQ. SPACES
9 9/16
LDW450-2302 (REF)
DRILL #40(.097-.107)
19 HOLES IN -17
-17
¼(TYP)(2)
⅜(TYP)(2)
Y5.371(REF)
-15(REF)
⅜
¼
3 5/32
A
B
X331.00(REF)

VIEW B-B

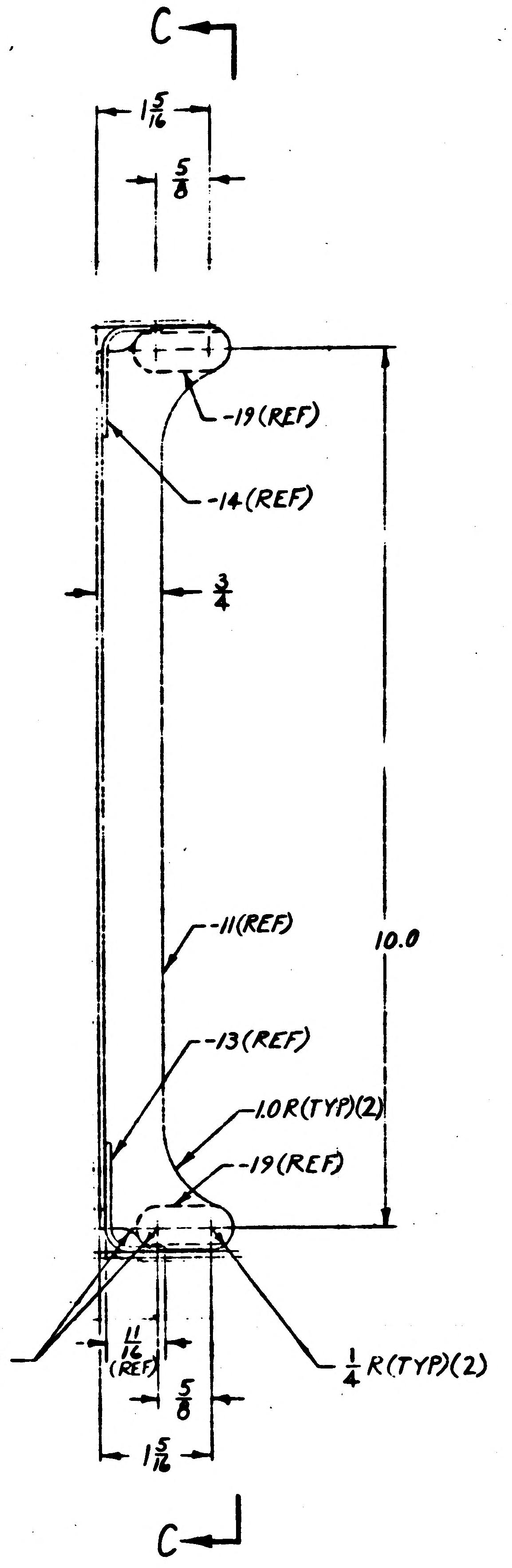

C
-15(REF)
1 5/16
⅝
-19(REF)
-14(REF)
¾
-11(REF)
10.0
-13(REF)
1.0R(TYP)(2)
-19(REF)
-15(REF)
¼ R(TYP)(4)
11/16 (REF)
⅝
¼ R(TYP)(2)
1 5/16
C

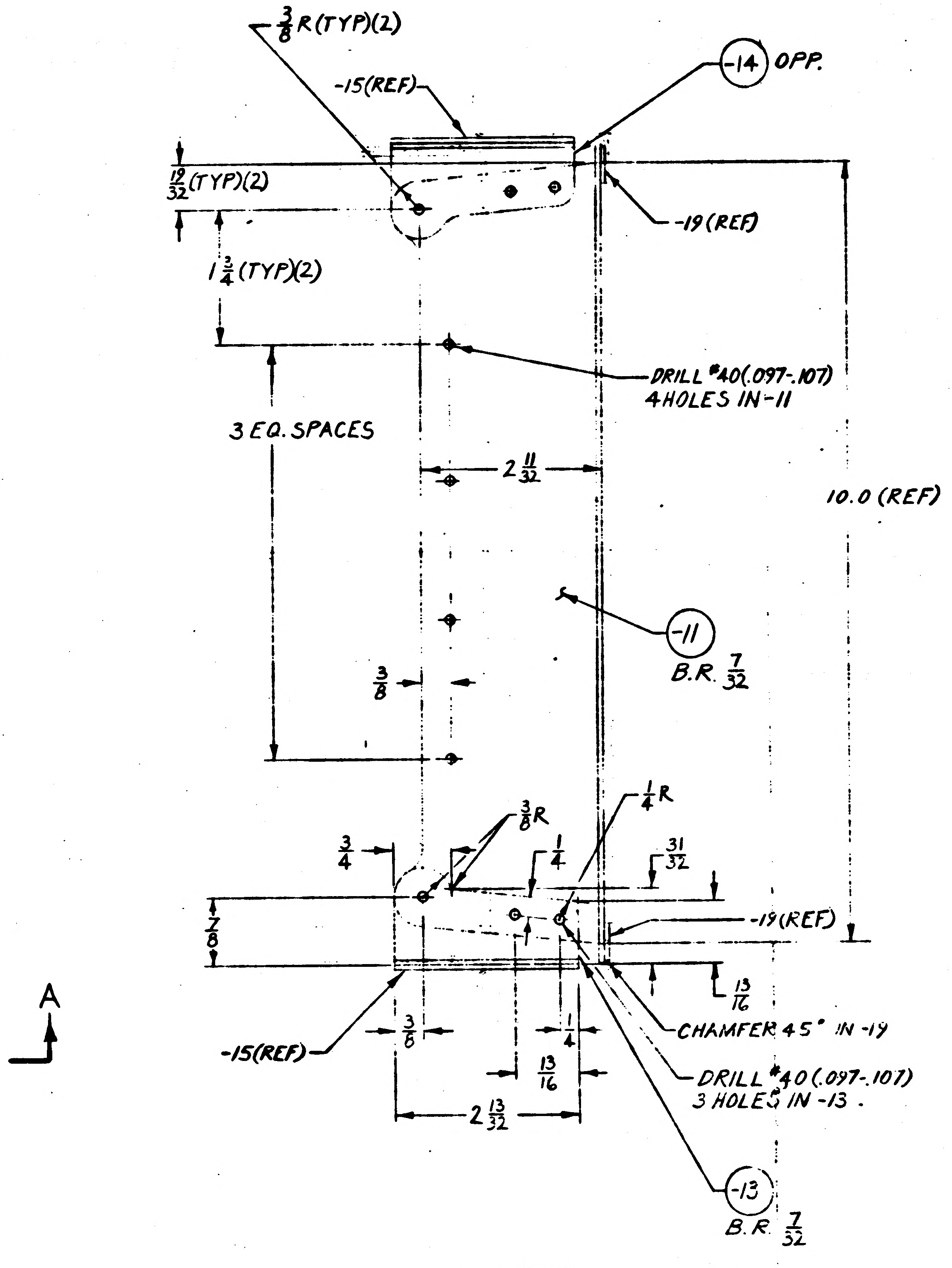
VIEW LOOKING INBD

01/02 NAS 9-1100

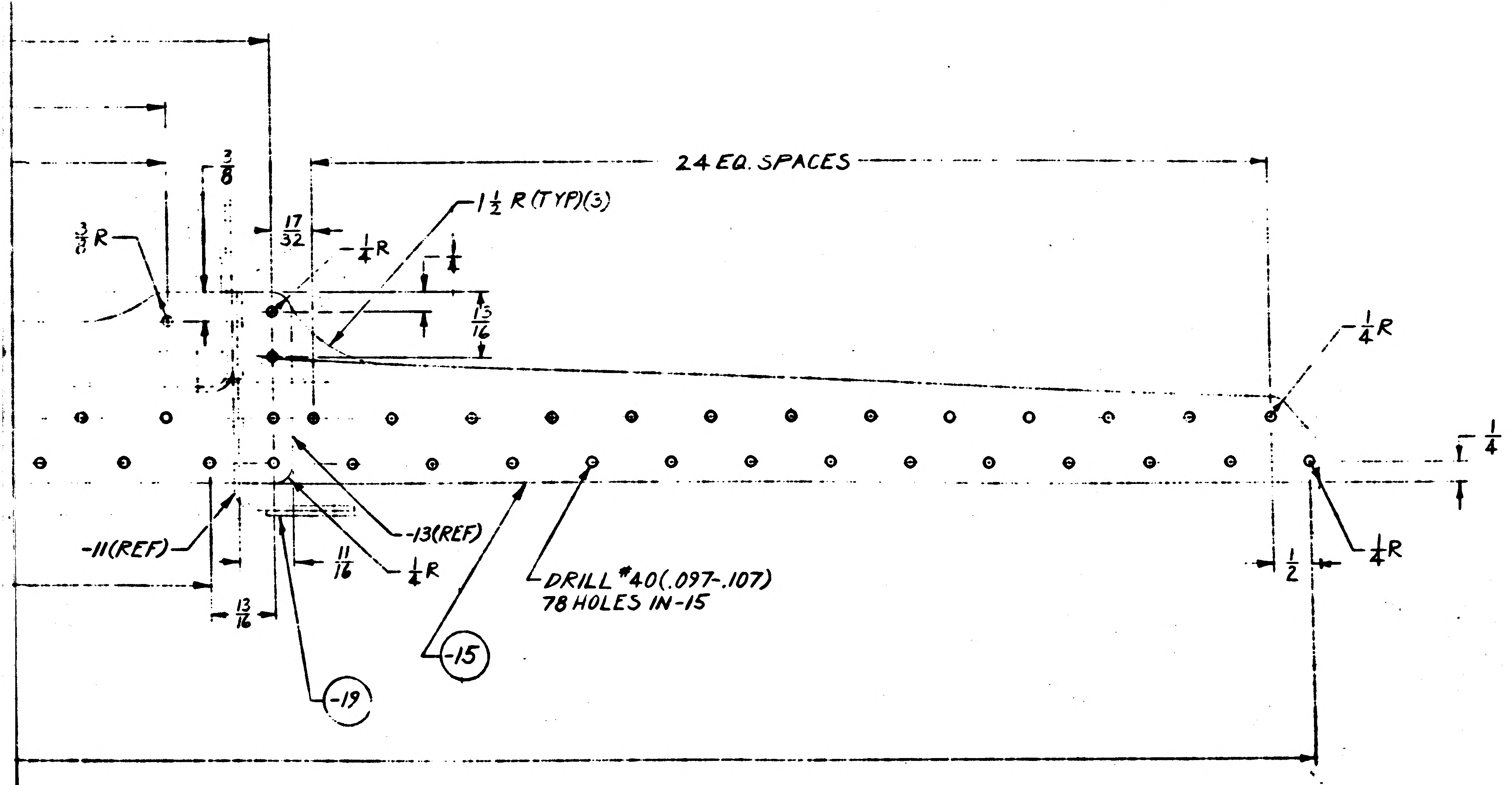

22 ¾
21 7/16
10 EQ. SPACES
24 EQ. SPACES
⅜
⅜R
⅜R
⅜
17/32
¼R
¼
1 ½ R(TYP)(3)
1 27/32
1 15/32
¼
5/16
9/16
¼R
⅜
-17(REF)
¼R
⅝
-11(REF)
-13(REF)
11/16
¼R
DRILL #40(.097-.107)
78 HOLES IN -15
21 EQ. SPACES
14 EQ. SPACES
13/16
14 17/32
-15
-19
36
X261.00(REF)

VIEW A-A


C
1 5/16
5/8
-19(REF)
-14(REF)
3/4
-11(REF)
10.0
-13(REF)
1.0R(TYP)(2)
-19(REF)
1/4 R(TYP)(4)
11/16 (REF)
5/8
1 5/16
1/4 R(TYP)(2)
C


3/8 R(TYP)(2)
-15(REF)
-14 OPP.
17/32(TYP)(2)
-19(REF)
1 3/4(TYP)(2)
DRILL #40(.097-.107) 4 HOLES IN -11
3 EQ. SPACES
2 11/32
10.0 (REF)
-11
B.R. 7/32
3/8
3/4
3/8 R
1/4 R
1/4
31/32
7/8
-19(REF)
13/16
-15(REF)
3/8
1/4
13/16
CHAMFER 45° IN -19
DRILL #40(.097-.107) 3 HOLES IN -13.
2 13/32
-13
B.R. 7/32
A

VIEW C-C


24 EQ. SPACES
3/8
3/8 R
17/32
1 1/2 R(TYP)(3)
1/4 R
1/4
13/16
1/4 R
1/4
-11(REF)
-13(REF)
11/16
1/4 R
13/16
DRILL #40(.097-.107) 78 HOLES IN -15
-15
-19
1/2
1/4 R

NOTE
1. [illegible] TO BE REDRAWN ON PRODUCTION FORMAT.
2. ALL INFORMATION [illegible] FOR THE MANUFACTURE OF LDW280-18103-11, -13, -14, -15, -17 & -19 IS FOR REFERENCE ONLY.
3. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .008 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250 FOR ALL DRILLED HOLES	
REMOVE ALL BUR. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

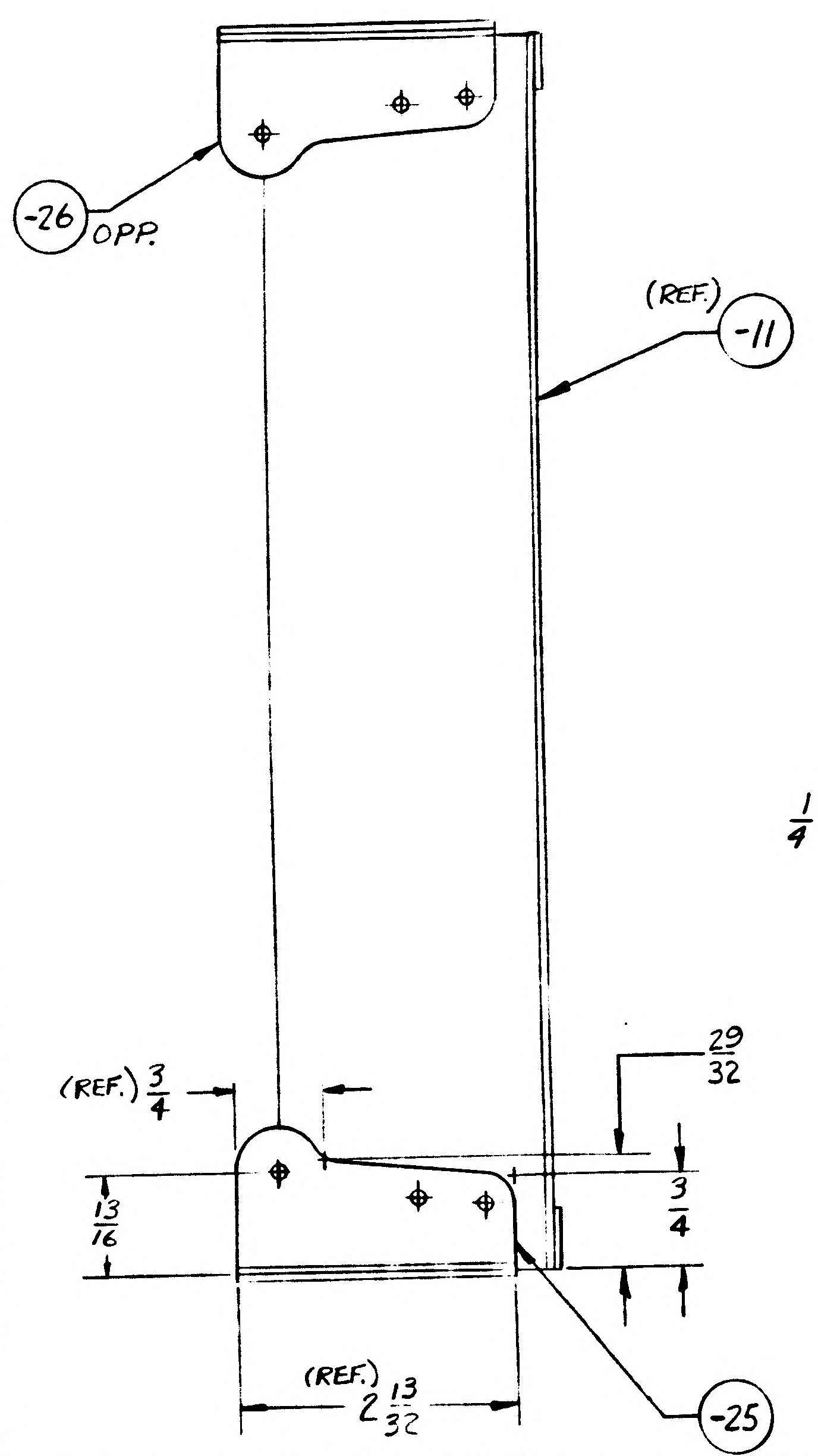
02/02 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
SIZE J
CODE IDENT NO. 26512
LDW280-18103
LEM
MODEL OR END ITEM
SCALE FULL
SHEET 3:00

THIS IS AN ORIGINAL DRAWING.

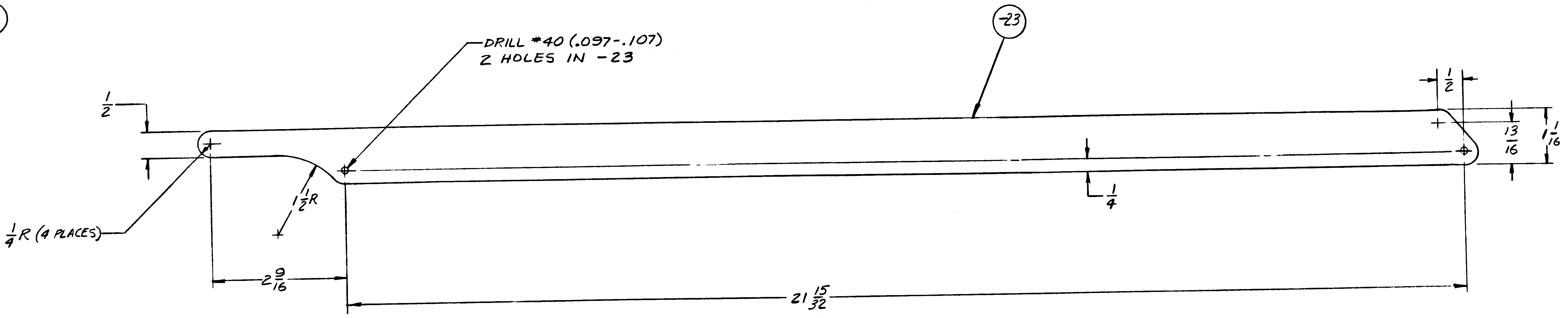
DWG NO. LDW280-18103 EO NO. A1
CONTROL INFO. NO. LDW 82-2796

IN M/B
FOR LDW 280-25811-19, '4 REQD' (WAS) '2 REQD'
FOR LDW 280-25811-11, "2 REQD' (WAS) '1 REQD'



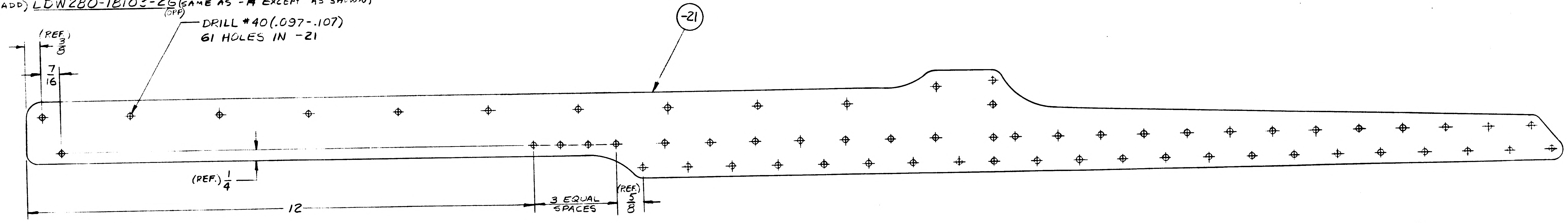
-26 OPP.
(REF.) -11
(REF.) 3/4
29/32
13/16
3/4
(REF.) 2 13/32
-25

(ADD) LDW280-18103-25 (SAME AS -13 EXCEPT AS SHOWN) FINISH 76
(ADD) LDW280-18103-26 (OPP) (SAME AS -14 EXCEPT AS SHOWN)



DRILL #40 (.097-.107)
2 HOLES IN -23
-23
1/2
1/2
13/16
1 1/16
1/4R (4 PLACES)
1 1/2R
1/4
2 9/16
21 15/32

(ADD) LDW280-18103-23 SHIM
MAKE FROM AL. ALLOY SHT, QQ-A-250/4, 2024-T3, .063 THK., FINISH NO. 76



DRILL #40 (.097-.107)
61 HOLES IN -21
-21
(REF.) 3/8
7/16
(REF.) 1/4
12
3 EQUAL SPACES
(REF.) 5/8

(ADD) LDW280-18103-21 PLATE
SAME AS -15 EXCEPT AS SHOWN - FINISH 76

IN M/B (ADD)
PART NO LDW280-18103-21 (2 REQD), -23 (2 REQD), -25 (1 REQD), -26 (1 REQD)
N/A LDW 280-25811
S/N LTA-5 (15)
E/I LEM

01 NAS 9-1100

X187
(2)

DETAIL SPEC REQD | CLASS II ENGRG CHG | CLASS I ENGRG CHG
CONTROL INFO NO. LDW 82-2796
REASON FOR EO: TO PROVIDE MOUNTING FOR ADDITIONAL TEMP. REF. JUNCTION BOX (ADDITIONAL REQ'D MEASUREMENTS)
DESCRIPTION OF EO: ADDED -21, -23, -25 & -26
QTY REQD FOR -19 (WAS) 2', FOR -11 (W
GRUMMAN EO RELEASE C
MODEL	END ITEM	EFFECTIVITY AEC UNIT NO.	SUB CONTR UNIT NO.
LEM	LTA-5 (15)		

DRAWING REVISION REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP
DATE BY
SUPPORT | RELIAB GROUP | GROUP LEADER | STRESS GROUP | LIAISON ENGRG | PROJ ENGR 1/25/67 | GOV'T
PRIORITY: C
DRAWING TITLE: ANGLE DESCENT STAGE ~ FWD END BULKHEAD THERMAL REFERENCE MODULE
ENGINEERING ORDER
DRAWING NO: LDW280-18103
EO NO.: A1
W MERINO X5195
ISSUED BY C. BLUM X5195
NSTF NEW MEX.
SECTION DAS INSTR.
GROUP NO. 862 PL 82
CODE IDENT NO. 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.
ENG 32 3 REV 3-65

11 [illegible]

RESTRICTED RELEASE

AUTHORIZED SIGNATURES	REPRESENTING	DATE
W. R. White	NAA-S&ID	3/11/66
B. Whitaker	GAEC	3-9-66

INTERFACE REVISION NOTICE

INTERFACE CONTROL DOCUMENT

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT. NO.	IRN
03953	№ 3988

SYM.	DOCUMENT NUMBER	REV.
A	MH01-05213-124	B

TITLE:
LEM TO SLA UMBILICAL SEPARATION (MECH.)

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS BETWEEN ALL PARTIES AFFECTED HEREIN. NOTHING CONTAINED IN THIS DOCUMENT SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN NAA AND THE ASSOCIATE CONTRACTOR

RELEASE DATE 3-14-66

DESCRIPTION

IN ZONE 2, AT END OF GEN. NOTES 6 & 7, AFTER (BP30, LEM-1, SLA-7) ADD THE FOLLOWING;-

"-----), (S/C 017, LTA-10R, SLA-8) & (S/C 020, LTA-2R, SLA-9)"

IN EFFECTIVITY BLOCK "DESCRIPTION" ADD FOLLOWING LEM EFFECTIVITIES;-

"LTA-10R & LTA-2R"

2½ + 1 ITEMS

MAIL CODE	COPIES TO:	DEPT.
HK 22	R. HARTLEY (1)	D/696/700
HA 67	R. KURTZ (1)	697/700
HB34	C. LLEWELLYN (1)	693/200
HB04	J. FIRTH (1)	692/406
HB04.	R. LIVINGSTONE (1)	692/406
TULSA	J.R. GOLDEN (1)	995/212
GAEC-AE99	J. YEAGER (1 REPRO)	096/330
NASA-AE99	J. YEAGER (13)	096/330
	AP. ENG. FILES (2 MICRODEKS)	
	AP. ENG. FILES (5 COPIES)	
TULSA	J. HAYES (1 MICRODEK)	D/995
FB48	W. NEATHERLIN (1)	689/300

REASON: TO REFLECT REQUIRED LEM-SLA EFFECTIVITIES.

DR. BY	DATE
FIRTH	2/21/66
DEPT/GROUP	**EXT.**
692/302	2363
SHEET 1 OF 1	

FORM M 110-N-55 REV 9-65

2

SYMBOLS: A = ATTACH IRN COPIES TO DRAWINGS

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO.	LEO280	EO NO.	1764
CONTROL INFO NO.	LDW280B9387		

FOR THE FOLLOWING PART NO'S * é DASH NO'S * NOTED ADD LFM 507, LTA-5/R (159) EFF N/A é QTY SHOWN

DRAWING NO *	DASH NO. *	QTY.	N/A	CHG
LDW280-18103	-11, -15, -21 é -23	2 EA	LDW280-25811	A3
	-13, -14, -17, -25 é -26	1 EA		
	-19	4		
LDW280-25811	-1	1	LDW200-55530	A3

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	✓	LCD3890 PKG 95 (5)

REASON FOR EO: ADDITIONAL TEMP REF JUNCTION BOX REQ'D

DESCRIPTION OF EO: FOR * : ADDED LTA-5/R (159) EFF

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY NO.~~ E/I	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM507	LTA-5/R(159)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									GAEC EO RELEASE
✓		NOT REQ'D		APPROVED BY	RGH						ALB 11-22-69
				DATE	11-21-69		11/20/69	11/21/69		11/22	11/24/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1764

CDR 12-5-69

ISSUED BY DONNER/BARNES X86046 SECTION VDI GROUP NO. 335 PL. 25

01

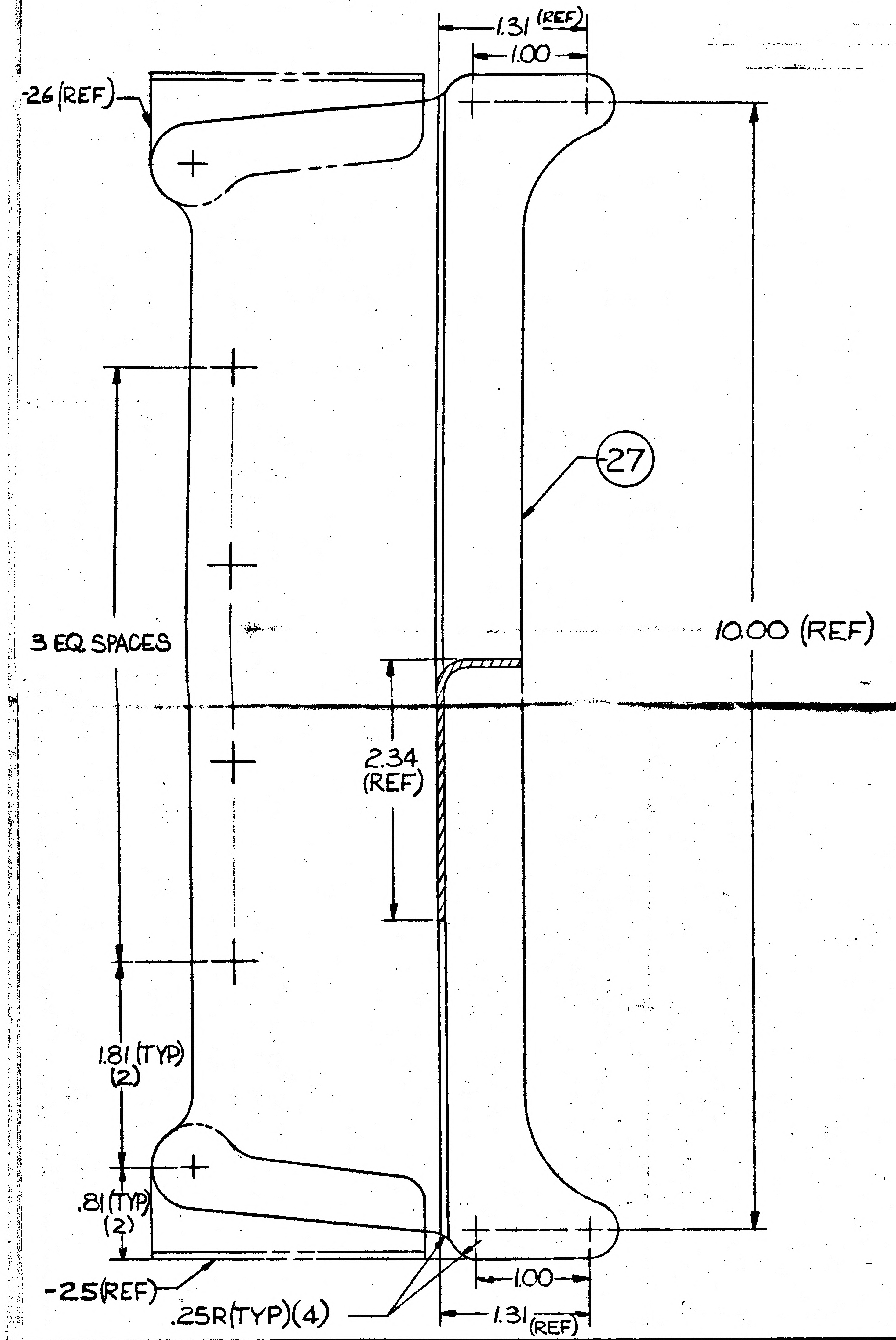
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AEROSPACE CORPORATION
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18103
EO NO. 44
CONTROL INFO NO. LDW280C0210

ADD -27 IDENT TO -11 EXCEPT AS SHOWN
-27 QTY/MOD (1) N/A LDW280-25811 EFF LTA-5/R(159) & LFM507
REMOVE -11 FROM LTA-5/R(159) & LFM 507



DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	✓ LCD 3890 PKG 95

REASON FOR EO: TO PROVIDE SUFFICIENT EDGE DISTANCE FOR FASTENERS

DESCRIPTION OF EO: ADDED -27
REMOVED LTA-5/R(159) & LFM 507 EFF FROM -11

MODEL	EFFECTIVITY [redacted]	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 507	LTA-5/R(159)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

	APPROVED BY	DATE	
VDI	RJF	3-25-70	
SUPPORT			
RELIAB. GROUP			
GROUP LEADER	GWB	3/25/70	
STRESS GROUP	NM	3/26/70	
LIAISON ENGRG			
PROJ ENGRG		3/26/70	
GAEC EO RELEASE		3/27/70	

PRIORITY: C
DRAWING TITLE: ANGLE ~ D/S ~ FWD END BULKHEAD THERMAL REFERENCE MODULE
DRAWING NO. LDW280-18103
EO NO. 44

3/27/70
ISSUED BY J. PEDERSEN/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18104

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25812	LTA-5 (15)	1 EA
PART NO. LDW280-18104-11 & -13		GAEC SCH NO. 50-1	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1	2	3						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN PREL INFO	
LAST DASH NO. USED	-13	PRIM NO. 207	LE(001) MP-8-20-6

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	8-16-66		
LAYOUT BY	MARZELLA		
CHECKED BY		WEIGHTS	8/26
GRP. LEADER	8/16/66	RELIABILITY	
VDI	8/16		
STRUCTURES	WPB 8/18/66	PROJ ENGR	8.20
STRUCTURES	Hilderman 8/19	REL GROUP	8-29-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE -DESCENT STAGE
HYD INTERFACE ~ GSE SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18104
SCALE NONE
SHEET 1 OF 3

CDR= 8/29 30

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18104-13	E	CLIP	AL ALLOY SHT	QQ-A-250/4	2024-T3	.050 x 1½ x 1½		88	
								LDW280-18104-11	E	ZEE	AL ALLOY SHT	QQ-A-250/4	2024-T3	.050 x 4 x 11		88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14.9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18104

SCALE NONE

SHEET 2

ENG 77.2 7-65

01

NAS 9-1100

LDW280-18105

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25814	LTA-5 (15)	1EA
PART NO. LDW280-18105-11,-13,-15		GAEC SCH NO. 50-1	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1		2	3					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO

PRIM NO. LE(001)

207 MP-8-22-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
1/32 - .015 - 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY 8-17-66
LAYOUT BY MARZELLA
CHECKED BY
GRP. LEADER 8/18/66
VDI 8/19
STRUCTURES NM FEY
STRUCTURES Hilderman 8/19
WEIGHTS 8-29
RELIABILITY
PROJ ENGR R.M. Carbee (WR) 8-30
REL. GROUP 8-29-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE - DESCENT STAGE
GSE HEAT SHIELD ELECTRICAL INTERFACE

SIZE B
CODE IDENT NO. 26512
LDW280-18105
SCALE NONE
SHEET 1 OF 3

ENG 77.1 12-65

CDR=8-29-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18105-15	E	CLIP	AL ALLOY SHT	QQ-A-250/4	2024-T3	.050x 1 x 3	—	88	
								LDW280-18105-13	E	PLATE	AL ALLOY SHT	QQ-A-250/4	2024-T3	.050x 2 x 3	—	88	
								LDW280-18105-11	E	ANGLE	AL ALLOY SHT	QQ-A-250/4	2024-T3	.050x 4 x 8½	—	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

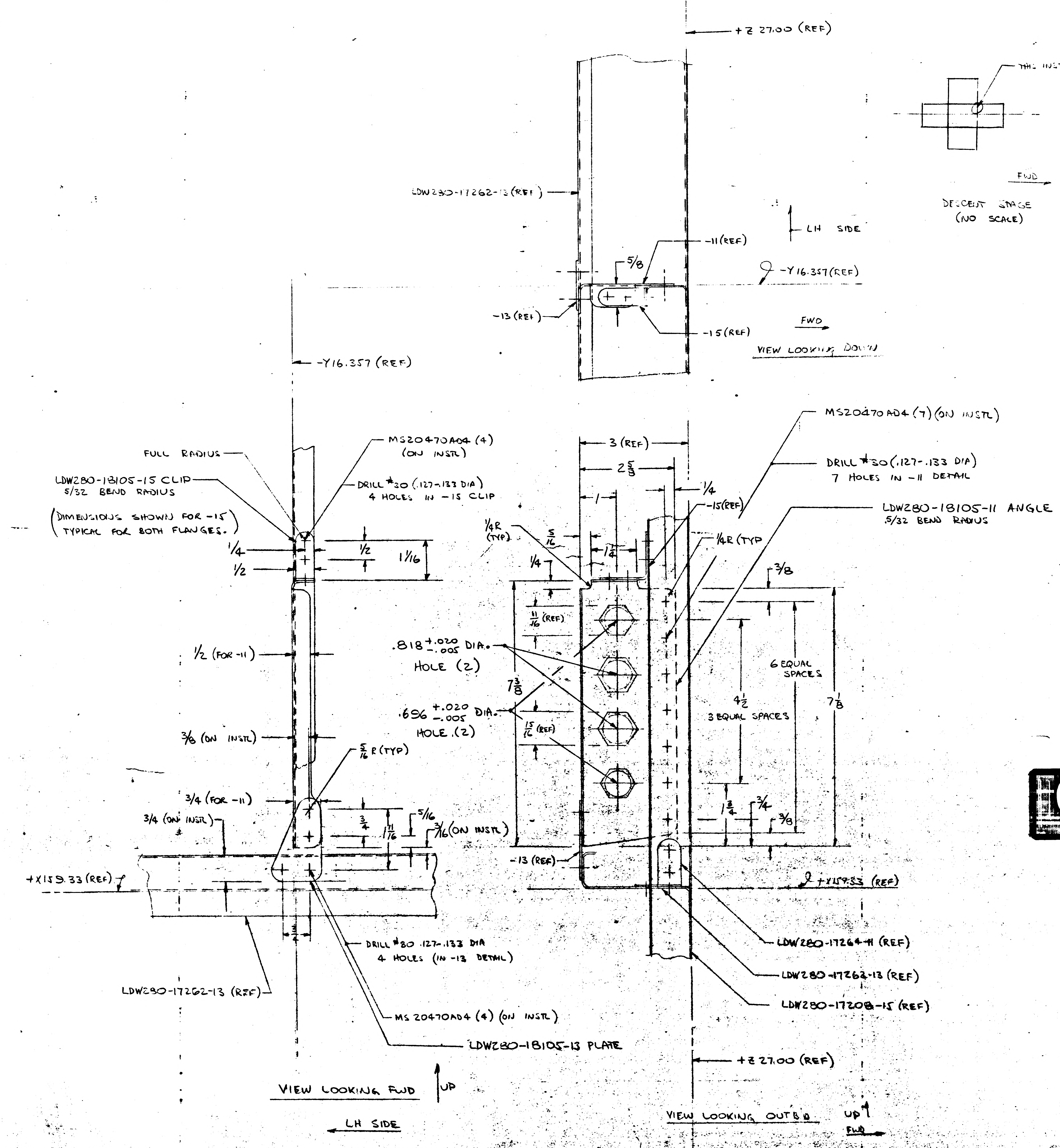
SIZE	CODE IDENT NO.	
B	26512	LDW280-18105

SCALE NONE SHEET 2

ENG 77.2 7-65

01

NAS 9-1100


+Z 27.00 (REF)
LDW280-17262-13 (REF)
-11 (REF)
5/8
-Y16.357 (REF)
-13 (REF)
-15 (REF)
FWD
VIEW LOOKING DOWN
LH SIDE
THIS INSTL
FWD
DESCENT STAGE
(NO SCALE)
-Y16.357 (REF)
FULL RADIUS
LDW280-18105-15 CLIP
5/32 BEND RADIUS
(DIMENSIONS SHOWN FOR -15
TYPICAL FOR BOTH FLANGES.)
MS20470AD4 (4)
(ON INSTL)
DRILL #30 (.127-.133 DIA)
4 HOLES IN -15 CLIP
1/4
1/2
1/2
1 1/16
1/2 (FOR -11)
3/8 (ON INSTL)
5/16 R (TYP)
3/4 (FOR -11)
3/4 (ON INSTL)
3/4
1 11/16
5/16
3/16 (ON INSTL)
+X159.33 (REF)
3/4
DRILL #30 .127-.133 DIA
4 HOLES (IN -13 DETAIL)
LDW280-17262-13 (REF)
MS 20470AD4 (4) (ON INSTL)
LDW280-18105-13 PLATE
VIEW LOOKING FWD
UP
LH SIDE
3 (REF)
2 5/8
1
1/4
-15 (REF)
1/4 R (TYP)
5/16
1/4
1/4 R (TYP)
1/4
11/16 (REF)
.818 +.020 -.005 DIA.
HOLE (2)
7 3/8
.696 +.020 -.005 DIA.
HOLE (2)
15/16 (REF)
-13 (REF)
MS20470AD4 (7) (ON INSTL)
DRILL #30 (.127-.133 DIA)
7 HOLES IN -11 DETAIL
LDW280-18105-11 ANGLE
5/32 BEND RADIUS
3/8
6 EQUAL SPACES
4 1/2
3 EQUAL SPACES
7 1/8
1 3/4
3/4
3/8
+X159.33 (REF)
LDW280-17264-11 (REF)
LDW280-17263-13 (REF)
LDW280-17208-15 (REF)
+Z 27.00 (REF)
VIEW LOOKING OUTB'D
UP
FWD

01 NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

LDW280-18105

H24

LAYOUT RELEASE

TO BE REDRAWN ON PRODUCTION FORMAT

ALL INFORMATION NOT REQ'D FOR MANUFACTURE OF PART IS FOR REF ONLY.

NOTES:

1) INSTALL FASTENERS PER LSP 14.15302.

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-18105
MODEL OR END ITEM	SCALE F		SHEET 3

THIS IS A ORIG D

727 6-64

LDW280-18107

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-25534	LTA-8(18)	1
PART NO. LDW280-18107-11		GAEC SCH NO. 514	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH								
SHEET	1.00		2.00		3.00			
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED		GRUMMAN REL INFO	
		PRIM NO.	LE(001)
LAST DASH NO. USED	-11	207	MP-8-29-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY		RELIABILITY	
LAYOUT BY	C. DeAngelis 8-16-66		
CHECKED BY			
GR LEADER			
VEH DES INT.	8/26		
STRUCTURE	NM W/H 8/26	PROJ ENGR	R.M. Cubec 8/27
STRUCTURE	H. JOERMAN 8/26	REL GROUP	Bott. 9-10-66
WEIGHTS			

® GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESC. STAGE, R.H. FWD BEAM
PANEL-POWER CABLE SUPT.

SIZE	CODE IDENT NO.	
B	26512	LDW280-18107
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

C.D.R. = 8/26

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18107-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.056×1.0×8½	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

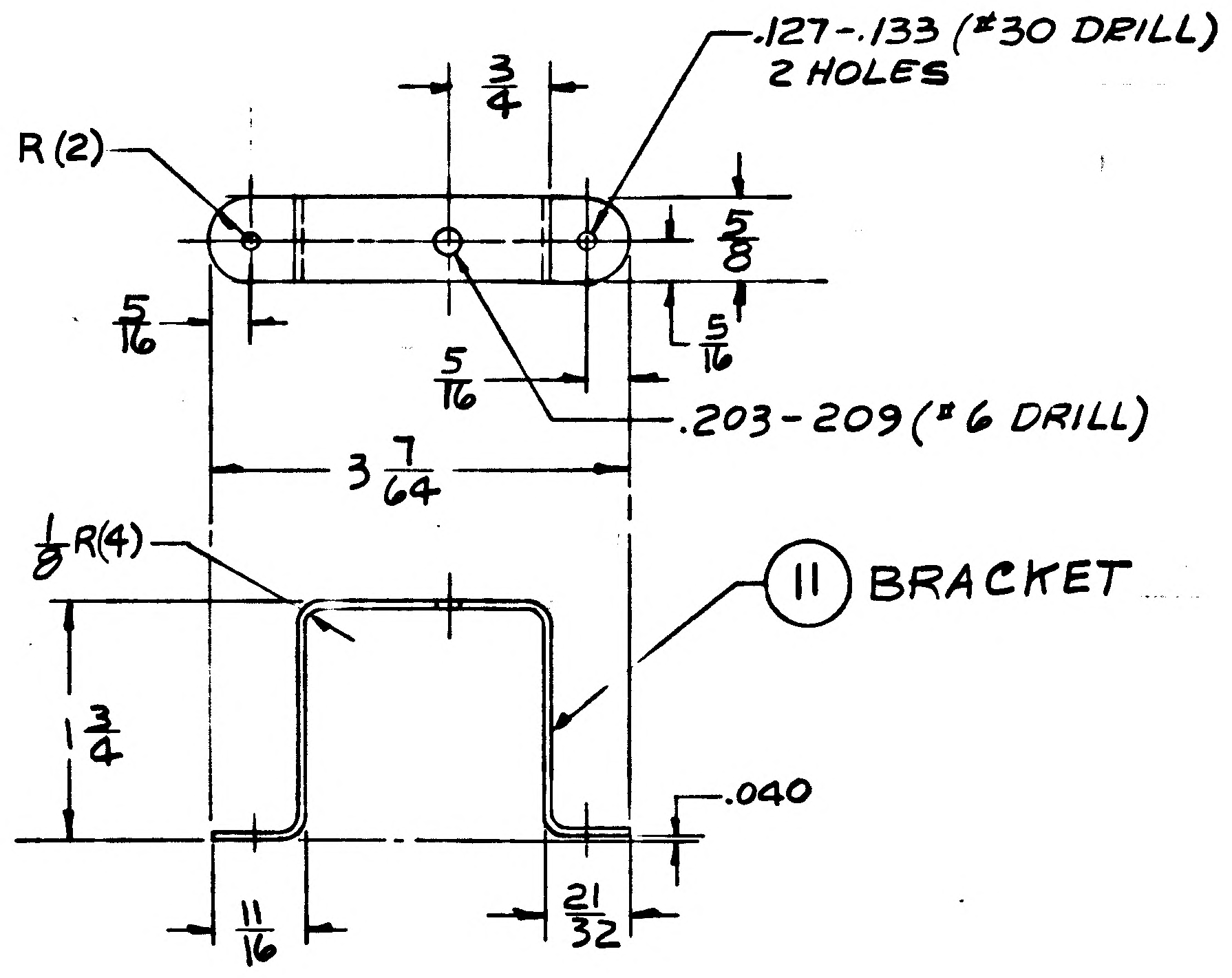
SIZE	CODE IDENT NO.	
B	26512	LDW280-18107

SCALE NONE

SHEET 2.00

ENG 77.2 7-66

01 NAS 9-1100



.127-.133 (#30 DRILL)
2 HOLES
3/4
R (2)
5/8
5/16
5/16
5/16
.203-209 (#6 DRILL)
3 7/64
1/8 R(4)
11 BRACKET
1 3/4
.040
11/16
21/32

NOTES:

1. NO TOOLING HOLES PERMITTED IN PART.
2. FOR LAYOUT RELEASE ONLY. TO BE REDRAWN ON PRODUCTION FORMAT.

LDW280-18107

LDW280-18107

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LEM	SIZE C	CODE IDENT NO. 26512	LDW280-18107
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

ENG 73-2 6-64

01

NAS 9-1100

LDW280-18108 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23541	LTA-3(13)	1EA
PART NO. LDW280-18108-11,-13, -15,-17,-19,-21,-23&-25		GAEC SCH NO. 502	

WORK PKG FUNCTION NO. 110 3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00		3.00			
REV	A	A		A		A			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-25	PRIM NO. 207	JK(001) MC-1614-8-1-67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A.STERNBERG 4/4	RELIABILITY	
LAYOUT BY	G.BARNES GWB		
CHECKED BY	4-6-67		
~~GR LEADER~~			
VEH DES INT	4/8/67		
STRUCTURES	8/10/67	PROJ ENGR	W.R. Bischo 8/2
STRUCTURES	8/15	REL GROUP	8/21/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE - LOWER DECK
RIGHT HAND SIDE

SIZE	CODE IDENT NO.		
B	26512	LDW280-18108	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
	1	1.00,1.10,2.00,3.00					✓	EO A1	E.O. A1 INITIAL DWG RELEASE PARTS MADE PEP E.O.	LTA-3(13)	NOT	REQD	A. STERNBERG 4-3-67		4/12/67

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
	A		4/8/67	NM			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18108	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY								CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
									LDW280-18108-25	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.040x6x6	NONE	76	
									-23		RADIUS PLATE				.125 x 2x 3			
									-21		DOUBLER				.040x6x6			
									-19		DOUBLER				.040x6x6			
									-17		RADIUS PLATE				.125 x2x 3			
									-15		RADIUS PLATE				.125 x2x 4			
									-13		DOUBLER				.040x6x6			
									LDW280-18108-11	E	RADIUS PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.125 x 2 x4	NONE	76	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						76	AODINE	LSP-14-9010

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

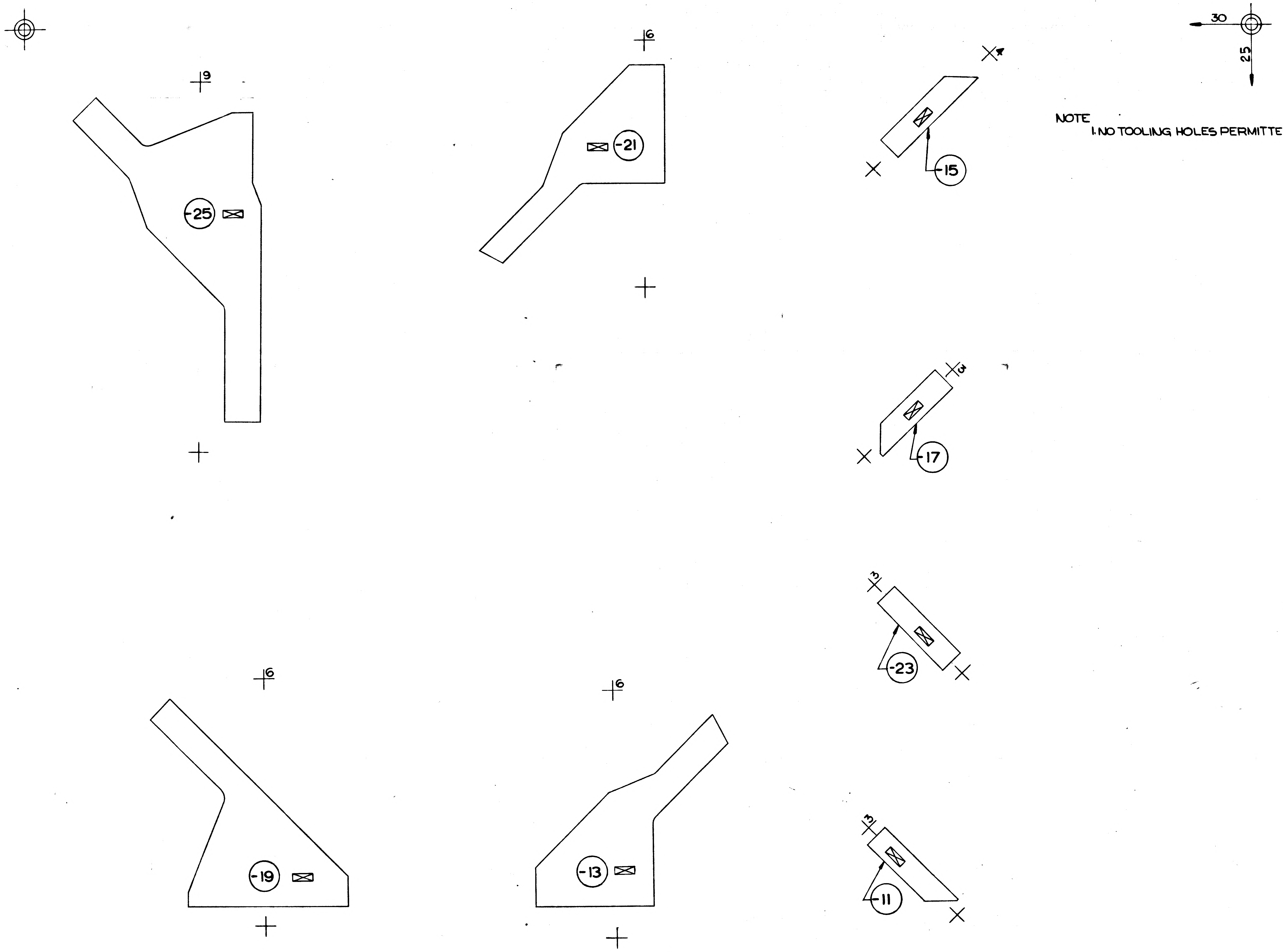
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18108	A Ⓐ
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	F	26512	LDW280-18108	A
SCALE FULL			SHEET 3.00	

FOR PHOTO REPRODUCTION K2

LDW280-18108 A

LDW280-18109 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23542	LTA-3(13)	2 EA
PART NO. LDW280-18109-15 & -17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23542	LTA-3 (13)	1 EA
PART NO. LDW280-18109-11, -13, -19 & -21		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -21

GRUMMAN REL INFO

PRIM NO. (B001)

215 MP-14 A-IL4-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY	T. FREDA 9-12-66	RELIABILITY	
LAYOUT BY	G. BARNES		
CHECKED BY	EG 9-16-66		
~~GRP. LEADER~~			
VEH DES INT			
STRUCTURES	11/2/66	PROJ ENGR	
STRUCTURES		REL GROUP	
WEIGHTS	Albanese 9/26		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

RADIUS BLOCK
DESCENT STAGE ~ LOWER DECK LEFT HAND

SIZE	CODE IDENT NO.		
B	26512	LDW280-18109	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77 1 12-65

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1,1.10,2,3						EO A1 Ⓕ	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO	LTA-3(13)	NOT	REQD	T. FREDA 9-12-66	RMC	10/3/66

	LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
CHG APPROVED	A		JHS 10/21/66			R. Albano 9-26					

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18109	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18109-21	E	RADIUS BLOCK	AL ALLOY SH	QQ-A-250/12	7075-T6	.125 x 7/8 x 3	NONE	76	
		-19						.125 x 7/8 x 3 1/8			
		-17						.125 x 7/8 x 3			
		-15						.125 x 7/8 x 3 1/8			
		-13						.125 x 7/8 x 3 1/8			
		LDW280-18109-11	E	RADIUS BLOCK	AL ALLOY SH	QQ-A-250/12	7075-T6	.125 x 7/8 x 3 1/8	NONE	76	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						76	ALODINE	LSP-14-9010

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

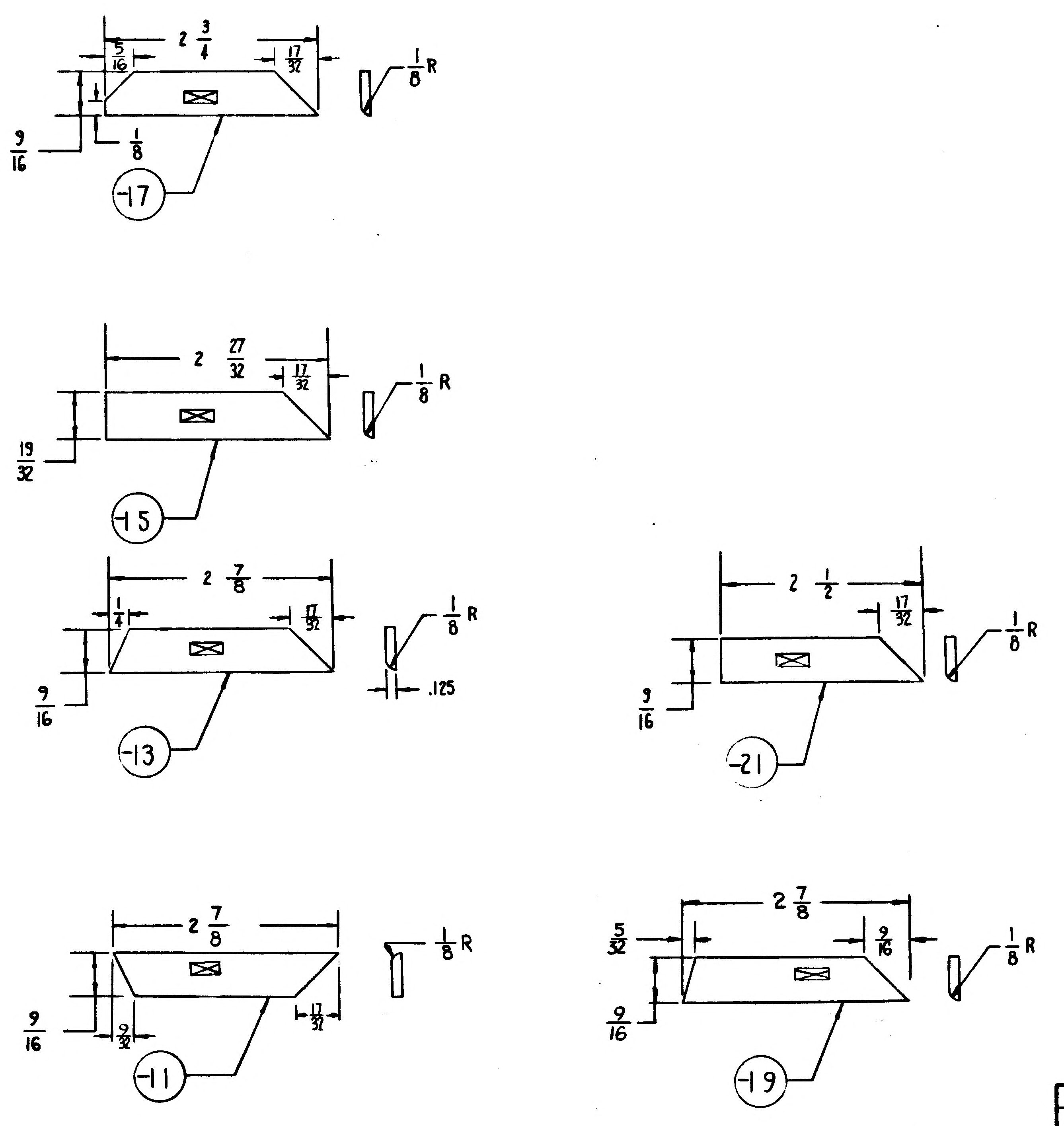
SIZE	CODE IDENT NO.		
B	26512	LDW280-18109	A

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18109	A
	SCALE FULL			SHEET 3.00

LDW280-18109 A

ENG 73-8 11-64

01

NAS 9-1100

LDW280-18110 A

LFM

PART NO. LDW280-18110-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LFM-126	LDW280-66665	LTA-8	1
LM	LDW280-54665	TM-5/R	
	LDW280-54665	DVT (70)	
	LDW280-58665	LM-15	
		THRU	
	LDW280-58665	LM-8	
	LDW280-56665	LM-7	
	LDW280-56665	LM-6	
	LDW280-54665	LM-5	
	LDW280-54665	LM-4	
	LDW280-52665	LM-3	
	LDW280-52665	LM-2	
	LDW280-51665	LM-1	
LM	LDW280-28665	LTA-8	1

PART NO. LDW280-18110-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LFM 126	LDW280-66665	LTA-8	2
LM	LDW280-54665	TM 5/R	2
	LDW280-54665	DVT (70)	2
	LDW280-58665	LM-15 (45)	1
		THRU	
	LDW280-58665	LM-8 (38)	
	LDW280-56665	LM-7 (37)	
	LDW280-56665	LM-6 (36)	
	LDW280-54665	LM-5 (35)	
	LDW280-54665	LM-4 (34)	
	LDW280-52665	LM-3 (33)	
	LDW280-52665	LM-2 (32)	
	LDW280-51665	LM-1 (31)	
LM	LDW280-28665	LTA-8 (18)	1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00				
REV	A	A	A	A				
SHEET								
REV								
SHEET								
REV								

		GRUMMAN REL INFO A	
LAST SECT LTR USED		PRIM NO.	JK (001)
LAST DASH NO. USED	-15	207	ME-ILA 4/29/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .010 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	R. VAN COTT		
LAYOUT BY			
CHECKED BY			
GP.LEADER	J. STRAKOSCH		
STRUCT	R. HILDERMAN 8/29		
STRUCT	W.H F.B.	PROJ ENGR	R. CARBEE 8/30
WEIGHTS	L. GARCIA 9/2	REL GROUP	C. BOTTI 9/10/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-QUAD II THERMAL
SHIELD- STRAP LINK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18110	A
SCALE	NONE	SHEET 1.00 OF 4	

(A)

ENG 77.1 12-65

SUPERSEDES LDW 280-18110 NC 8-26-66

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NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED NO CHANGE-LAST REV. N.C. SH. SIZE "D" WAS "F" ADDED SH 1.10 TWEEDY 6-14-68						
A	1	1.00, 2.00 3.00							INC EO A1	LM-1 THRU LM-6 LTA-8			W. VAN VORST 3-31-69		
	2	1.00							INC. LEO 280-320	LM-7 THRU LM-15					
	3	1.00							INC LEO 280-440	LM-2 THRU LM-15					
	4	1.00							INC EO A4	LM-1 THRU LM-15					
	5	1.00		G					INC EO A5	LM-4 THRU LM-15 DVT (70)					
	6	1.00							INC LEO 280-964	TM-5/R					
	7	1.00		LFM 126					INC EO A7	LTA 8		N.D.		J.V.	
	8	1.00							INC LEO 280-1171	LM-6 THRU LM-15			W. VAN VORST 4-16-69		
	9	1.00							INC LEO 280-1287	LM-8 THRU LM-15					
	10	1.00		Ⓡ			✓		REF LEO280-440 FOR-11 ADD N/A LDW280-52665 S/B FOR-11 & 15 LDW280-52665 (WAS) LDW280-51665 D.J. Hicks	LM-2 THRU LM-15	NOT 4/29/69	REQD			

CHG APPROVED

LTR	GROUP LDR	STRUCT	STRUCT	WEIGHTS	RELIABILITY	VDI				
A	4-24-69	-	4/25/69			4/21/69				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW 280-18110	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

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QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18110-15	E	STRAP	AL ALY SH	QQ-A-250/12	7075-O	.063×1×12	T6	88	
		LDW280-18110-11	E	CHANNEL	AL ALY SH	QQ-A-250/12	7075-O	.063×2×12	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18110	A

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

0 1

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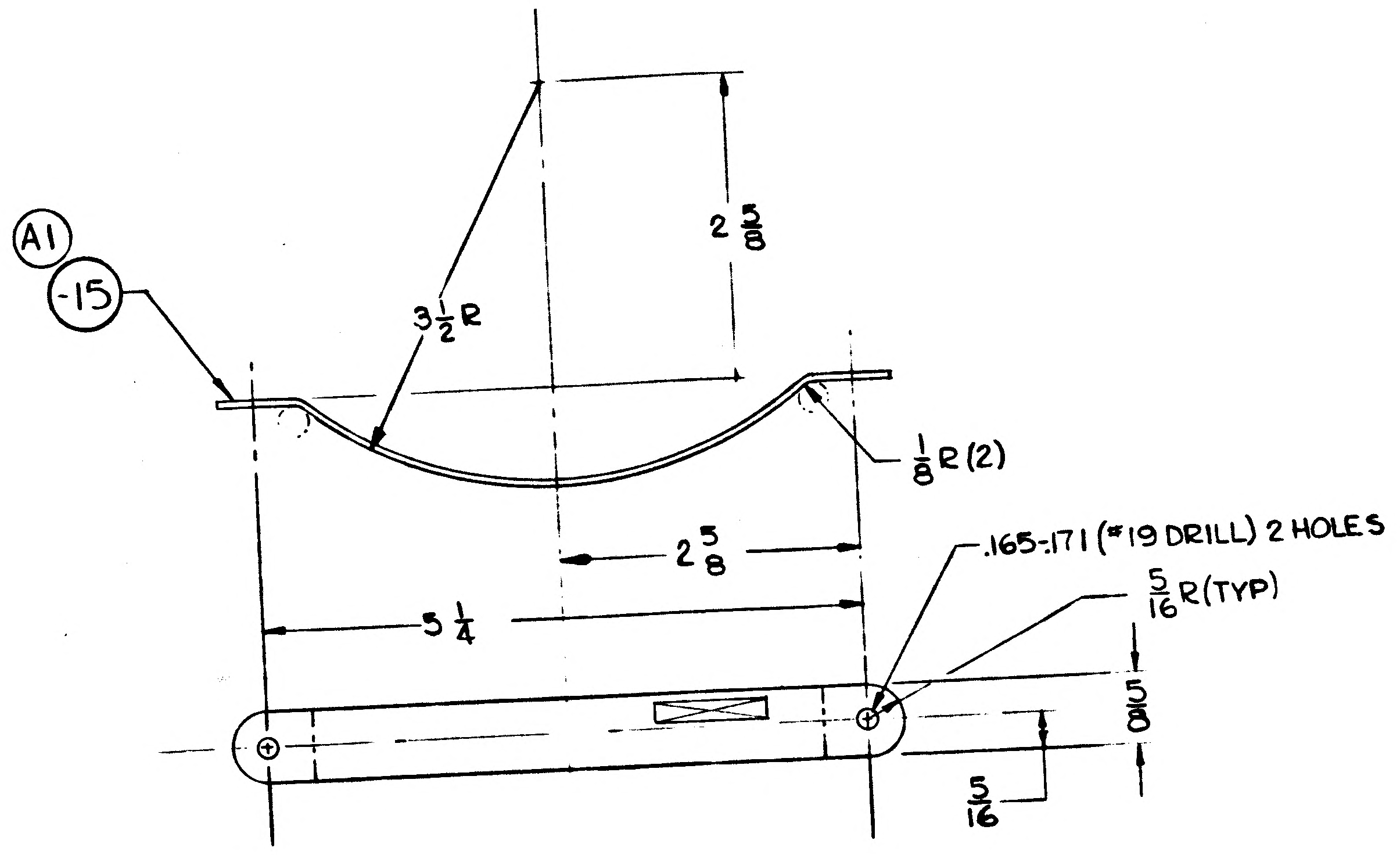
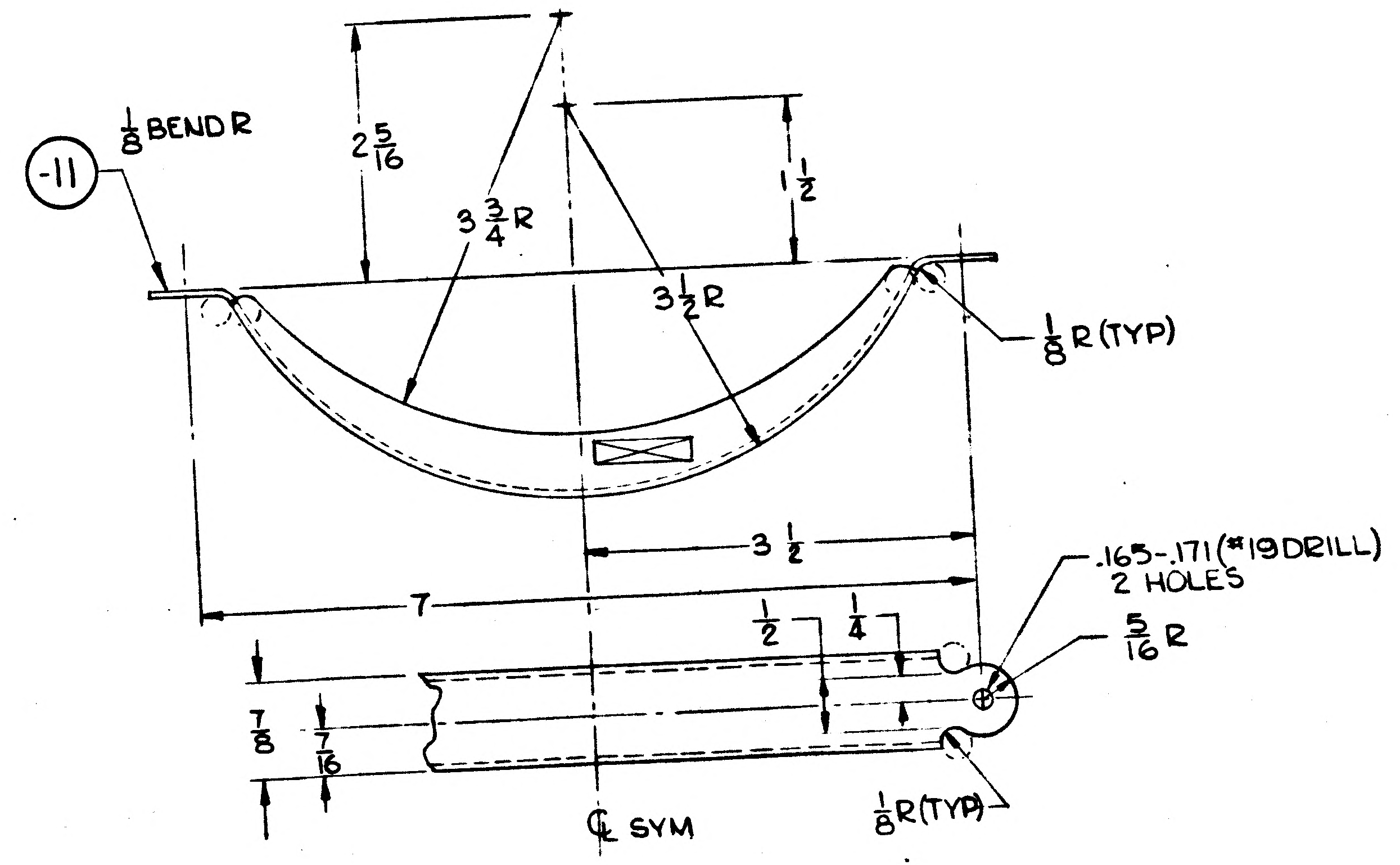
LDW280-18110 A

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	



A1
-15
$3\frac{1}{2}$R
$2\frac{5}{8}$
$\frac{1}{8}$R(2)
$2\frac{5}{8}$
$5\frac{1}{4}$
.165-.171 (#19 DRILL) 2 HOLES
$\frac{5}{16}$R(TYP)
$\frac{5}{8}$
$\frac{5}{16}$



-11
$\frac{1}{8}$BEND R
$2\frac{5}{16}$
$3\frac{3}{4}$R
$1\frac{1}{2}$
$3\frac{1}{2}$R
$\frac{1}{8}$R(TYP)
$3\frac{1}{2}$
7
$\frac{1}{2}$
$\frac{1}{4}$
.165-.171(#19 DRILL) 2 HOLES
$\frac{5}{16}$R
$\frac{7}{8}$
$\frac{7}{16}$
℄ SYM
$\frac{1}{8}$R(TYP)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE D	CODE IDENT NO. 26512	LDW280-18110	A
SCALE FULL		SHEET 3.00	

LDW280-18110 A

ENG 73.3 REV 5-67

01 NAS 9-1100

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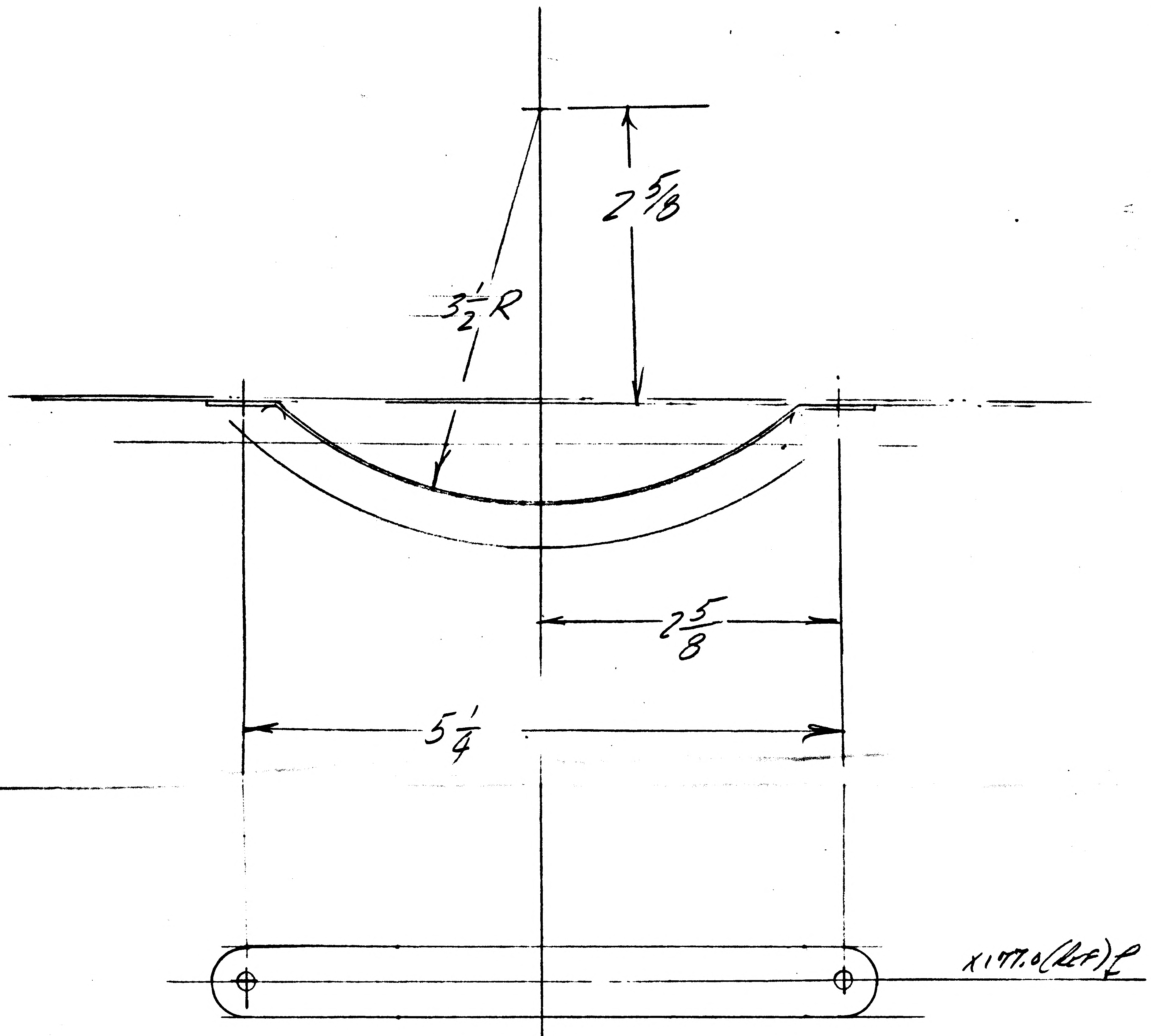
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18110
EO NO. A1
CONTROL INFO NO. LDW280A-0223



1. ADD LDW280-18110-15, REPLACES -13
   (IDENTICAL TO -13 EXCEPT AS SHN)

2. REMOVE -13 FROM FLD & B/M.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: REVISION IN THERMAL SHIELDING REQUIRES NEW PART.

DESCRIPTION OF EO: -15 REPLACES -13

GAEC C.F EO RELEASE: FE 9/22/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8 (18)	
		LEM-1 (31) THRU	
		LEM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK — SCRAP -13

	VDE	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					WJA		RMC (EJ)	
DATE	9/7/66	9/10/66			9/12/66		9-21	9/21/66

WTS

PRIORITY: C

DRAWING TITLE: CHANNEL DESCENT STAGE QUAD II THERMAL SHIELD - STRAP LINK

DRAWING NO. LDW280-18110

EO NO. A1

ISSUED BY R. VAN COTT X1153 SECTION VDE GROUP NO. 35 PL 335

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 440
CONTROL INFO NO. LDW 280 A-4581

TO THE FOLLOWING DRAWINGS REVISE MODEL BLOCK ADD:- N/A LDW280-52665 EFF. LM-2(32) THRU LM-15(45)

DRAWING NO	* DASH NO	TITLE	QUAN REQD	CHG. NO.
LDW280M17698	-11	WASHER, DESCENT STAGE~ PLUME IMPINGEMENT-HEAT SINK	49	B1
LDW 280-18222	-11	BRACKET, D/S~QUAD II~SEQ UPR. PLUME. IMP. SHIELD SUPPORT	2	B1
LDW280P18218	-19	TUBE~D/S~QUAD II~SEQ~ ACCESS DOOR	2	B1
LDW280P17575	-11 & -13	WASHER~THERMAL SHIELD~ LOWER DECK~STANDOFF	13	A4
LDW280P17480	-17	STRAP~D/S~QUAD I~ BATTERY ACCESS	3	A4
LDW280-18110	-11	CHANNEL~D/S~QUAD II~ PLUME IMP. SHIELD STRAP LINK	1	A3
LDW280-18219	-21 & -23	CHANNEL~D/S~S.EQ. ACCESS DOOR YOKE SUPPORT	1	B3

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL PARTS REQUIRED

DESCRIPTION OF EO: REVISED MODEL BLOCK OF * ADDED N/A LDW280-52665 EFF.:- LM-2(32) THRU LM-15(45)

GAEC EO RELEASE: C 1/11/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
LM		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY								
DATE	1/6/67	1/9/67			1/9/67		1-9-67	1/11/67
6	VDI	~~SUPPORT~~ THC KMD	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 440

ISSUED BY E. MADDEN / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 35

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NAS 9-1100

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512 *

ENGINEERING ORDER EMF-A

DWG. NO.	LDW 280-18110	EO NO.	A4
CONTROL INFO NO.	LM-5-12349		

ON -11 & -15

IN M|B

LEM	LDW280-51665	LEM-6 (36)	1 EA
↑	↑	LEM-5 (35)	↑
		LEM-4 (34)	
		LEM-3 (33)	
	↓	LEM-2 (32)	
↓	LDW 280-51665	LEM-1 (31)	↓
LEM	LDW 280-28665	LTA-8 (18)	1 EA
MODEL	NEXT ASSY	MODULE No	REQ'D PER MODULE
PART No. LDW 280-18110-11 & -15			

-11 ONLY

S|B

LM	LDW 280-52665	LM-15 (45)	2
↑	↑	LM-14 (44)	↑
		LM-13 (43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8 (38)	↓
		LM-7 (37)	2
		LM-6 (36)	2
		LM-5 (35)	↑
		LM-4 (34)	
	↓	LM-3 (33)	↓
	LDW 280-52665	LM-2 (32)	2
↓	LDW 280-28665	LM-1 (31)	1
LM	LDW 280-28665	LTA-8 (18)	1
MODEL	NEXT ASSY	MODULE No	REQ'D PER MODULE
PART No LDW 280-18110-11 & -15			

~~RELEASED BY LIAISON~~ 5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO

INCREASED EFFECTIVITY & QUANTITY
(RTE 05131-206)

DESCRIPTION OF EO

-11, -15
LM-1 N.A. LDW 280-28665 WAS LDW 280-51665
LM-2 THRU LM-6 N.A LDW 280-52665 WAS LDW 280-51665 QTY OF 2 WAS 1
ADDED LM-7 THRU LM-15 FOR -11 ONLY

Ⓡ GAEC EO RELEASE C

JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM			
		LM-1 (31)	
		THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY							RMC (EV)	
DATE	[illegible]				2-10-67	2-10-67	2-20-67	2-11-67
6	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C5	CHANNEL - D/S - QUAD II PLUME IMP. SHIELD STRAP LINK	LDW 280-18110	A4

ISSUED BY LIAISON A. VENTO X-6216 SECTION VD1 GROUP NO. 335 PL 35

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV

DWG. NO. LDW280-18110
EO NO. A5
CONTROL INFO NO. LDW280B0039

FOR -11 & -15: N/A LDW280-54665 (WAS) LDW280-52665 FOR EFF LM-4(34) THRU LM-15(45).

FOR -11 & -15, ADD D.V.T. (70) REQMTS, N/A LDW280-54665,
FOR -11 (2) REQ'D/MODULE.
FOR -15 (1) REQ'D/MODULE.

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 1433 CCA 586 PKG 17		(5)

REASON FOR EO: ALSEP REDESIGN

DESCRIPTION OF EO: FOR-11&-15, N/A LDW280-54665, (WAS) LDW 280-52665, EFF LM-4(34) THRU LM-15(45); ADDED D.V.T. (70) REQMTS.

GAEC EO RELEASE: S JK 4/1/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45)	
LM		DVT (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQD		DATE	3/29/68			3/28/68	4/1/68		4/1/68	4-1-68
REVISE DWG	RECORD EO	REWORK	SCRAP	G	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: CHANNEL~DS~QUAD II~ THERMAL SHIELD~STRAP LINK
DRAWING NO.: LDW280-18110
EO NO.: A5

3-29-68
ISSUED BY BELEV / HANSMANN SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 964
CONTROL INFO NO. LDW280 B3421

FOR THE FOLLOWING PARTS ADD TM-5/R (65) REQUIREMENTS, N/A LDW280-54665 FOR THE QUANTITIES NOTED

DWG NO*	TITLE	QUANT/MOD	CHANGE NO.
LDW 280P18282-1	SEE DWG	1	A8 ✓
-13		1	
-54739-1		1	A1 ✓
-3		1	
-18110-11		2	A6 ✓
-15		1	
-18459-11		1	A1
-12		1	
-13		1	
-15		1	
-16		1	
-17		1	
-19		1	
-54674-1		1	A2
-54674-3		1	
-18488-11		1	A1
-12		1	
-13		1	
-14		1	
-15		1	
-17		1	
-19		1	
-21		1	
-23		1	
-24		1	
-54742-1		1	A1
-3		1	
-5		1	
-18585-11		3	A1
-18486-11		1	A1
-12		1	
-13		1	
-15		1	
-17		1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2V (5)

REASON FOR EO: ADD TM-5/R (65) REQMTS

DESCRIPTION OF EO: ON (*) ADDED TM-5/R (65) REQMTS

GAEC C EO RELEASE: 5/22/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	5/16/68			5-16-68	5/16/68		5/16/68

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 964

5-17-68
ISSUED BY T. COTTER x3352/P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG NO LDW280-18110
EO NO. A7
CONTROL INFO NO. LDW280B4063

FOR -11 & -15 ADD LTA-8 (18) REQMTS N/A LDW280-66665
FOR -11 2 REQ'D/MOD
FOR -15 1 REQ'D/MOD

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCR 1021-33 CCA 498 PKG 5 (5)

REASON FOR EO: ADD LTA-8 (18) LFM 126 REQMTS

DESCRIPTION OF EO: ON -11 & -15 ADDED END ITEM LFM 126 REQMTS

GAEC EO RELEASE: JC 6/25/8

MODEL	EFFECTIVITY PROCURING ACTIV	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM126	LTA-8 (18)	

DRAWING CHANGE REQD REVISE DWG	RECORD EO	DISPOSITION OF PARTS REWORK	SCRAP
✓		NOT REQD	

APPROVED BY								
DATE	6/26/68	6-21-68		6/21/68	6/24/68		6/24/68	6-28-68
	VDI	SUPPORT ~~THERMO~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL D/S QUAD II - THERMAL SHIELD STRAP LINK	LDW280-18110	A7

6/26/68 ISSUED BY T. COTTER x 86018 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO280
EO NO. 1171
CONTROL INFO NO. LDW280 B5608

ON FOLLOWING PART NO. REVISE N/A. EFFECTIVITY LM-6(36) THRU LM-15(45)

CHG LTR	* PART NO	REVISE N/A TO	WAS
A8	LDW280-18110-11 & -15	LDW280-56665	LDW280-54665
A2	-18459-11, -12, -13 -15, -16, -17 -19		
B4	-18486-11, -12, -19 -21, -27, -29		
A6	-18488-11, -12, -15 -17, -25, -27 -28, -31, -32 -33		
A4	LDW280-54674-1 & 3	LDW280-56665	LDW280-54665

* FOR TITLE SEE DWG

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3179 PKG 9 ECP A062R CCA 1278 (5)

GAEC C
Ⓡ EO RELEASE

REASON FOR EO
REDUCTION OF THERMAL SHIELDING DUE TO REVISION OF PLUME HEATING RATE

DESCRIPTION OF EO
FOR * REVISED N/A TO LDW280-56665 (WAS) LDW280-54665 EFF LM-6(36) THRU LM-15(45)

MODEL	EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT REQD SCRAP

APPROVED BY	N.R.							
DATE	10/18/68	10/18/68		10/17/68	10/18/68		10/18/68	10-22-68
	VDI	THERMAL ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CCDP~~

PRIORITY C
DRAWING TITLE NOTED
DRAWING NO. LEO 280
EO NO. 1171

ISSUED BY CDR 110168 TORRACO / THORJUSEN X 1153
SECTION VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1287
CONTROL INFO NO. LDW280B7091

IN M/B FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.
EFF LM-8(38) THRU LM-15(45).

DRAWING NO.	DASH NO.	N/A WAS	N/A IS	CHANGE LETTER
LDW280-18110	-11&-15	LDW280-56665	LDW280-58665	A9
-18459	-11,-12,-13,-15,-16,-17&-19	-56665	-58665	A3
-18486	-11,-12,-19,-21,-23&-25	-56665	-58665	B6
-18488	-11,-12,-15,-17,-25,-27,-28,-31,-32&-33	-56665	-58665	A7
-18661	-11	-56648	-58648	A2
-54596	-1	-56599	-58599	A8
-54602	-1-1	-56648	-58648	B6
-54674	-1&-3	-56665	-58665	A5
-54739	-1-1&-3-1	-56665	-58665	A9
-54742	-41-1&-51	-56665	-58665	B3
-56601	-1	-56599	-58599	A2
-56767	-1,-3&-5	-56648	-58648	A2
LDW280-56804	-1	LDW280-56815	LDW280-58815	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3179 CCA1278 PKG 50 ECP A062 (5)

REASON FOR EO: CHANGE 1/2 MIL H-FILM TO 1/4 MIL H-FILM

DESCRIPTION OF EO: SEE ABOVE

GAEC EO RELEASE: R JK 2/19/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-8(38)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

		THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT
APPROVED BY		MMR						
DATE	2/13/69	2/17/69		2/12/69	2/12/69		2/17/69	2-19-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 1287

CDR030369
ISSUED BY W. KAY x87222 / D SHAPIRO x87222 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1438
CONTROL INFO NO. LDW280B7423

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18088	B3	SEE DWG
-18093	B3	
-18095	B2	
-18110	B1	
-18118	A4	
-18119	A4	
-18137	B3	
-18140	B1	
LDW280-18190	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG 8 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 5/6/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE				4-2-69			4/9/69	5-5-69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1438

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

THIS IS AN ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted]	LEO 280	EO NO. 1526
CONTROL INFO NO.	LDW280B 8105	

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW280-17998 ✓	SEE DWG	E2
18038 ✓		B5
18088 ✓		B4
18093 ✓		B4
18095 ✓		B3
110 ✓		B2
118		A5
119		A5
LDW280-18140	SEE DWG	B2

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3890 PKG 99 PG 25 & 26	(5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23 [redacted]) REQMTS

GAEC EO RELEASE: 8-5-69; 8/9/69; Bauman 8-9-69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP	

APPROVED BY					N			
DATE	7/29/69			7/29/69	8/2/69		8/4/69	8-9-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1526

8-22-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO 1736
CONTROL INFO NO. LDW280B8725

IN MOD. BLK. FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME. EFF: LM-10 (40) THRU LM-14 (44)

DRAWING NUMBER *	N/A IS **	N/A WAS ***	DWG. TITLE	CHG. LTR.
LDW280-56806-1	LDW280-60817	LDW280-58817	SEE DWG	A3
↑ -54739-1-2 & -3-2	↑ -60665	↑ -58665	↑	B3
-54742-41-3	-60665	-58665		B6
-56767-5	-60648	-58648		A4
-56601-1	-60599	-58599		A4
-18110-11 & -15	-60665	-58665		B3
-18459-11, -12, -13, -15, -16, -17 & -19	-60665	-58665		A6
↓ -18486-11, -12, -19, -21, -23 & -25	↓ -60665	↓ -58665	↓	C2
LDW280-18488-11, -12, -15, -17, -25, -27, -28, -31, -32 & -33	LDW280-60665	LDW280-58665	SEE DWG	B2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3994 PKG 92

(5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: IN MOD. BLK. FOR *, N/A ** (WAS) ***

GAEC EO RELEASE: VK 10/23/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D | REWORK | SCRAP

APPROVED BY								
DATE	—	10/21/69		10-20-69	10/21/69		10/24/69	10/23/69
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: SEE ABOVE

DRAWING NO.: LE0280

EO NO.: 1736

CDR110369

ISSUED BY D. SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18110

EO NO. B5

CONTROL INFO NO. LDW[illegible] C1354

ON-11

(1) REQ/MOD WAS (2) REQ/MOD FOR N/A LDW280-60665

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 5797 PKG 50

REASON FOR EO: TO CLEAR LREA ELEC. LINE

DESCRIPTION OF EO: ON-11 (1) REQ/MOD WAS (2) REQ/MOD FOR N/A LDW280-60665

GAEC EO RELEASE: 3/18

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 666	LM-10 (40)	
LM	LFM 666	LM-11 (41)	
LM		LM-12 (42)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	3-18-71			3/18/71	3/18/71			3-19-71
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: CHANNEL DIS ~ QUAD II THERMAL SHIELD ~ STRAP LINK

DRAWING NO.: LDW280-18110

EO NO.: B5

3-19-71

ISSUED BY R. CLARK / G. HANSMANN SECTION VDI GROUP NO. 0335 PL 025

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NAS 9-1100

LDW280-18111 B

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM420-2370-003			
LDW420-2370	LDW280-54520	SER#1	1
PART NO. LDW280-18111-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52665	LM-2(32)	1
LM	LDW280-28665	LM-1(31)	1
PART NO. LDW280-18111-13		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25677	LTA-8(18)	1
LM	LDW280-23677	LTA-3(13)	1
PART NO. LDW280-18111-11		GAEC SCH NO. 50-2	

WORK PACKAGE FUNCTION NO. 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	B	B	B	B
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED	
LAST DASH NO. USED	-15

GRUMMAN REL INFO B		
PRIM NO.	JK(001)	
2.5	ME-1	B 4/3/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS-9 1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	G. KORDES 2-1-67	RELIABILITY	
LAYOUT BY	RAGAS		
CHECKED BY	2-17-67		
GR. LEADER			
VEH. DES. INT			
STRUCTURES	2/21/67	PROJ ENGR	2-23-67
STRUCTURES		REL GROUP	2-23-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE - ENGINE COMP'PROP
DRAIN LINES

SIZE	CODE IDENT NO.		
B	26512	LDW280-18111	B
SCALE	NONE	SHEET 1.00 OF	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10, 2.00, 300						EO A1	EO A1 INITIAL DRAWING RELEASE PARTS MADE PER EO	LTA-8(18) LTA-3(13)	NOT	REQD	G. KORDES 2-1-67	RMC 2-23-67	2-23-67
	2							EO A2	IN FLD (ON-11) ADDED DIMS 4°, 5/16 R (4): DIM. 15/16 (WAS) 5/32 (2 PLCS) 35° WAS 75°		✓				
	3							EO A3	ADDED LDW280-18111-13	LM-1, LM-2	NOT	REQD			
B	1	300, 1.00, 2.00							INC. EO B1	LM-2 THRU LM-15			S. CARANO 4-2-69		
	2	1.00							INC. LEO280-625	LM-3 THRU LM-15					
	3	1.00							INC. E.O. B3	LTA-3 DR(46)					
	4	1.00							INC. E.O. B4	LM-3(33)					
	5	1.00							INC. E.O. B5	LM-2(32)					
	6	1.00		LFM420-2370-003					INC. LEO280-826	SER# 1		H.D.			
	7	1.00							INC. EO B7	LM-4 THRU LM-15 LTA-3D/R					

CHG APPROVED LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
A		2/20	2/21/67	2/2							
B											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18111	B
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18111-15	E		GUSSET	AL. ALLOY SH	QQ-A-250/4	2024-T3	.063 X 3 X 2 1/2	NONE	88	
	LDW280-18111-13	E		PLATE	AL. ALLOY SH	QQ-A-250/4	2024-T3	.063 × 3 × 3	NONE	NONE	
	LDW280-18111-11	E		CHANNEL	AL ALLOY SH	QQA-250/4	2024	.100 X 4 X 6	T42	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T42	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-0030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

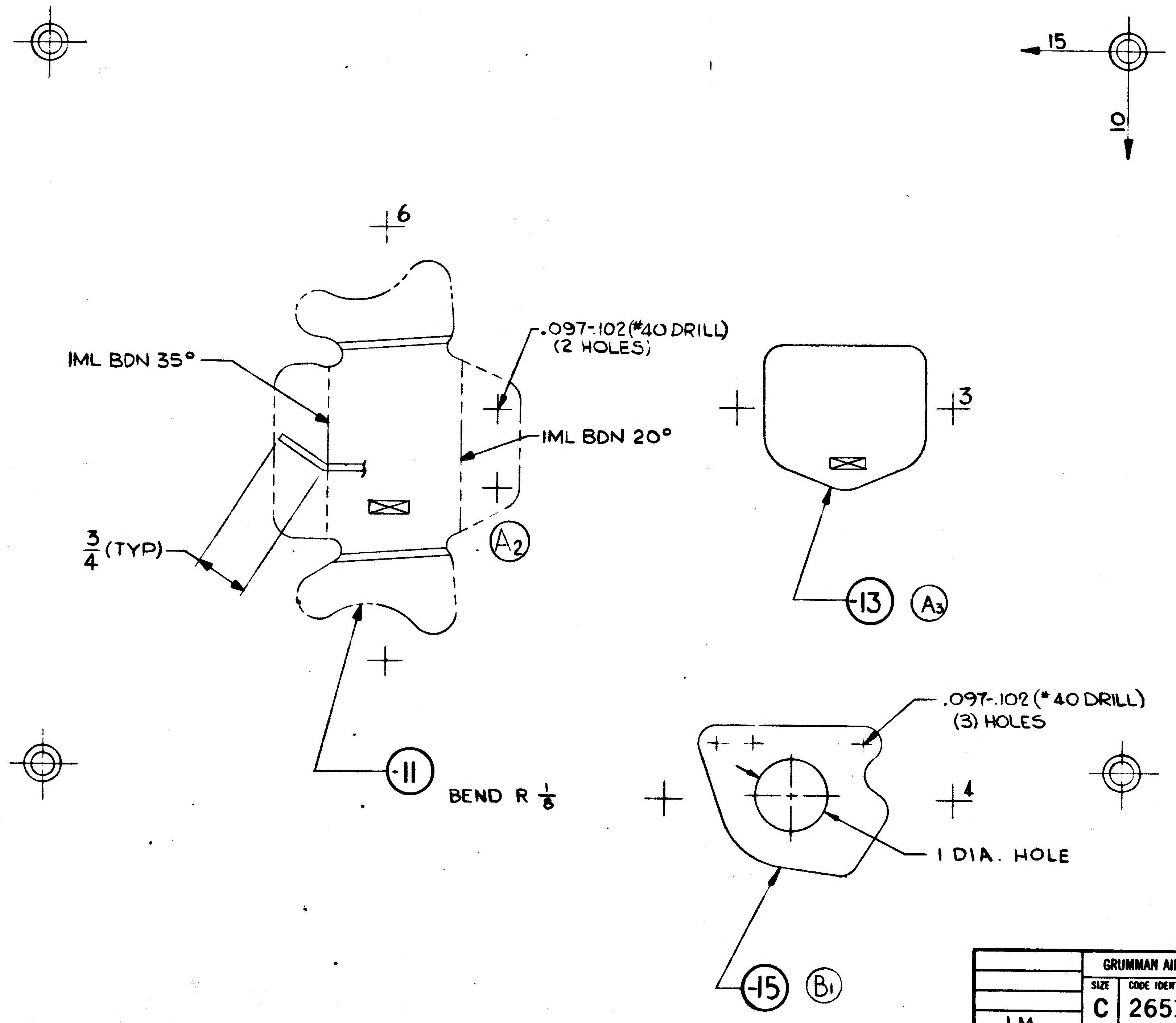
SIZE B
CODE IDENT NO. 26512
LDW280-18111
B

SCALE NONE
SHEET 200

ENG 77.2 5-64

0 1

NAS 9-1100



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMPART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18111	B
	SCALE FULL		SHEET 3.00	

LDW280-18111 B

Rel# 33056

FOR PHOTO REPRODUCTION

K2

ENG 73-8 11-64

01

NAS 9-1100

A

ENG 32.1 **RELEASED BY LIAISON**

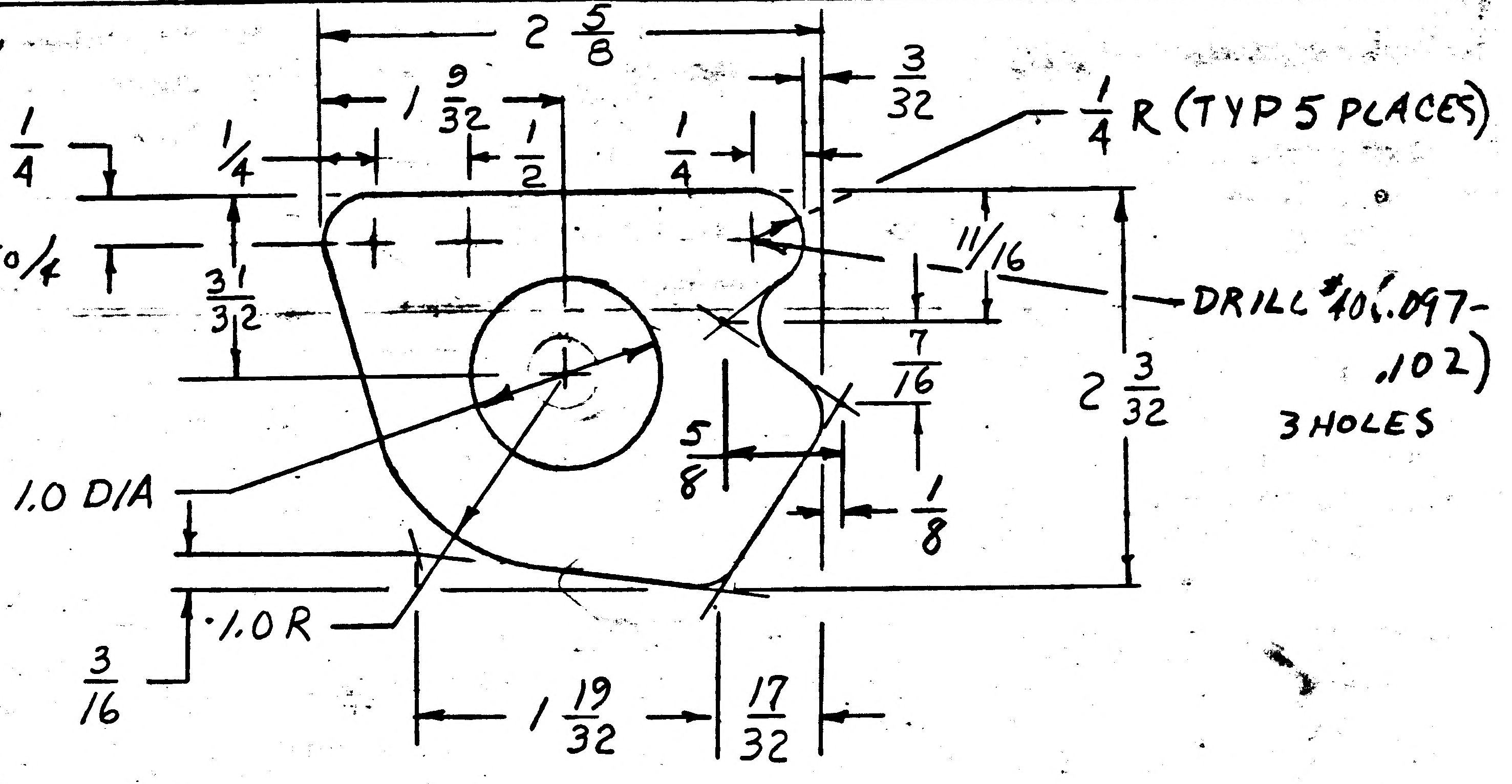
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-18111		EO NO. B1
CONTROL INFO NO. LM5-11914		

INF/D&BM ADD:

-15 (.063) (GUSSET)
AL ALY SH.
2024-T3 QQ-A-250/4
FIN 88

N/A LDW280-52520
LM2 (32) THRU 15 (45)
(1) REQD/MOD.
I & T = E



2 5/8
1 9/32
1/2
1/4
1/4
3/32
1/4 R (TYP 5 PLACES)
1/4
3 1/32
11/16
DRILL #40 (.097-.102) 3 HOLES
7/16
2 3/32
5/8
1/8
1.0 DIA
.1.0 R
3/16
1 19/32
17/32

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO FACILITATE INSTL OF BLANKET STRAPS

DESCRIPTION OF EO: IN M/B, F/D & BM ADDED -15

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2(32) THRU	15 (45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS			
REVISE DWG	RECORD EO	REWORK	SCRAP		
✓		NOT	REQD		

					GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	WT				~	JF	CH		
DATE	2/27/67				~	2-1-67	2-27-67	3-8-67	3-1-67
1	VD1	SUPPORT	RELIAB GROUP						

PRIORITY: C

DRAWING TITLE: CLIP D/S-ENG COMP & THERMO SHLD SUPT

DRAWING NO.: LDW280-18111

EO NO.: 31

ISSUED BY Don Ragas X6510 SECTION VD1 GROUP NO. 335 PL 5

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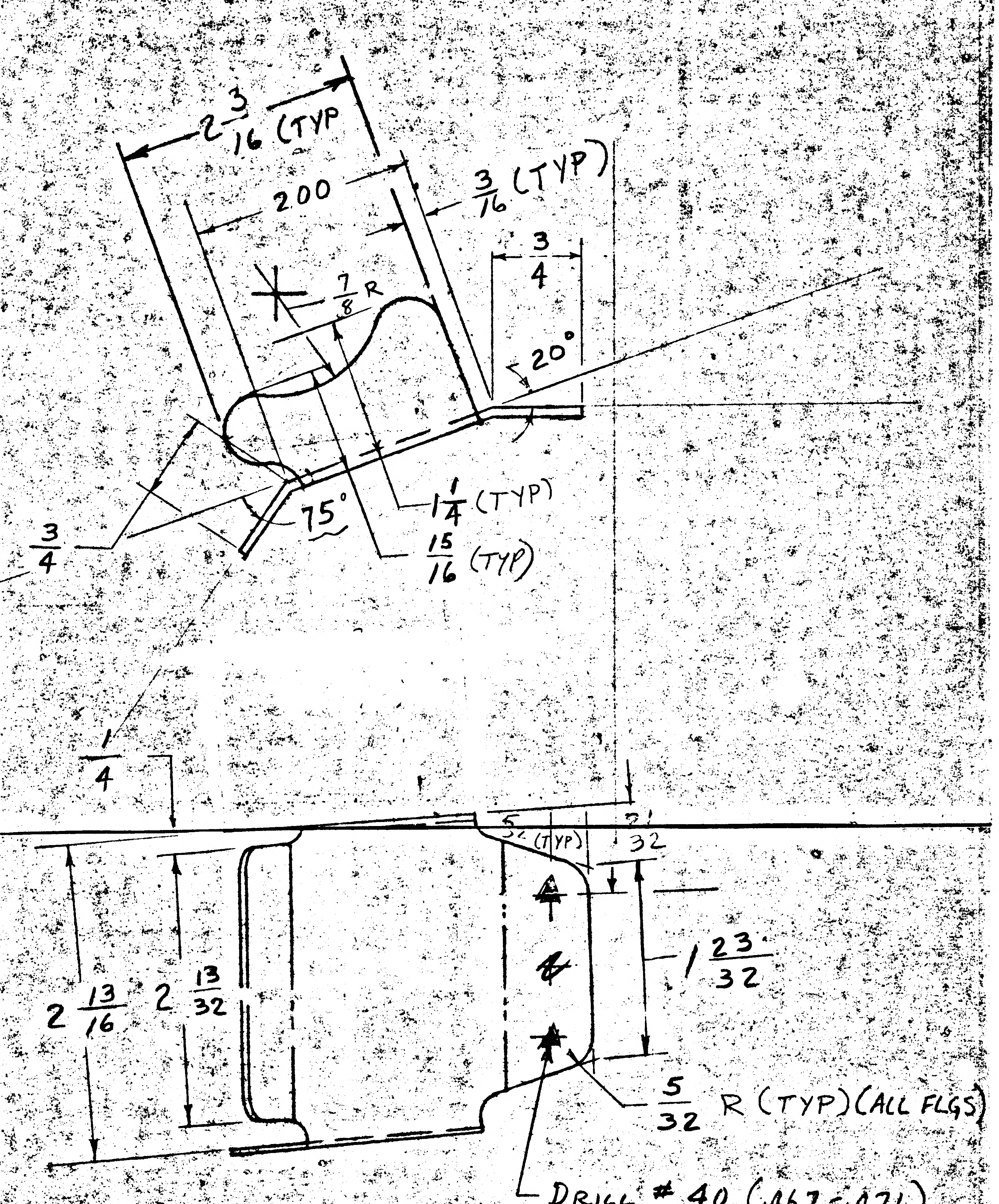
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18111		EO NO. A1
CONTROL INFO NO. LDW280-8917		



DRILL #40 (.067-.071)
2 HOLES

LDW280-18111-11 CHANNEL
MAKE FROM
2024-0 AL ALY SH (.000) I&T-EXEMPT
BR 1/8 QQA-250/4
FIN 88 HT-T42
N/A LDW280-23677 - 1EA 1REQD FOR LTA3(13)
25677 LTA8(18)
(2)

TOL
±1/2°
±.020
±1/16

DETAIL SPEC REV		GL II ENGRG CHG		GL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
RELOCATION OF ATTACHMENT POINT	EO A, INITIAL RELEASE PART MADE PER EO	X LE 9-12

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA3	(13)
		LTA8	(18)

DRAWING CHANG REQD		DISPOSITION OF PARTS		APPROVED BY									
X		HOT	REQD	DATE	9/14/66	9/14/66	—		9/14/66		9-12-66	9-12-66	
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S ENG COMP PROP & DRAIN LINES	LDW280-18111	A1

ISSUED BY [illegible] SECTION [illegible] GROUP NO. 335

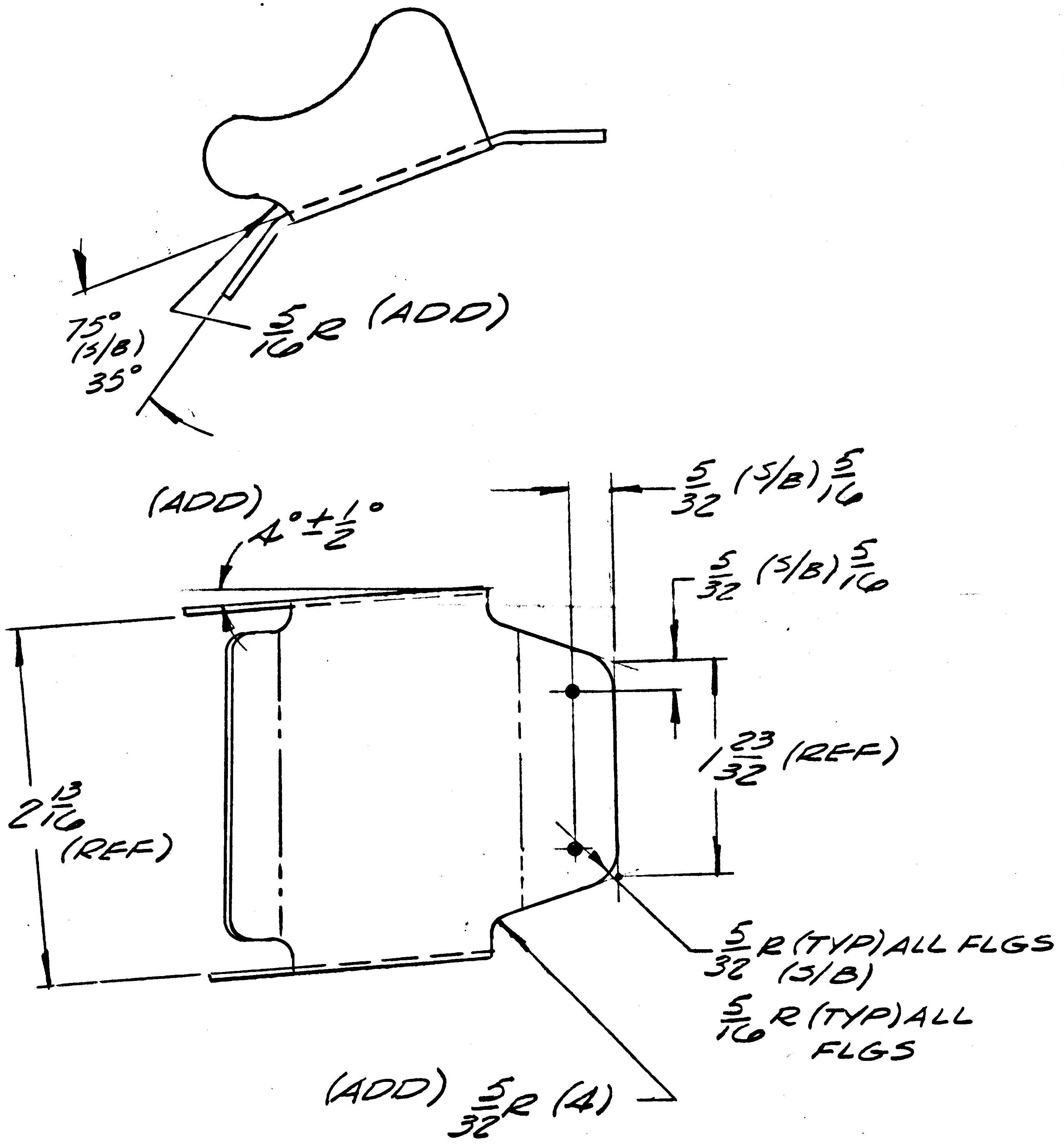
NAS 9-1100

ENG 32.2 REV 3-66 LIAISON ENGINEERING #5

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18111
EO NO. A2
CONTROL INFO NO. LM-5-9097

IN FLD (ON-11)



75° (S/B) 35°
$\frac{5}{16}$R (ADD)
(ADD) $4° \pm \frac{1}{2}°$
$\frac{5}{32}$ (S/B) $\frac{5}{16}$
$\frac{5}{32}$ (S/B) $\frac{5}{16}$
$1\frac{23}{32}$ (REF)
$2\frac{13}{16}$ (REF)
$\frac{5}{32}$R (TYP) ALL FLGS (S/B)
$\frac{5}{16}$R (TYP) ALL FLGS
(ADD) $\frac{5}{32}$R (4)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: ADDED MISSING DIMS & CLARIFY DWG

DESCRIPTION OF EO: IN FLD (ON-11) ADDED DIMS 4°, $\frac{5}{16}$R, $\frac{5}{32}$R (4); DIM $\frac{5}{16}$ (WAS) $\frac{5}{32}$ (2 PLCS) & 35° (WAS) 75°

GAEC C EO RELEASE: FR WB

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JH				JFJ	CH	RMC (EW)	
DATE	9/13/66				9-15-66	9-14-66	9-19	9-5-66

PRIORITY: C

DRAWING TITLE: CLIP, DESCENT ENGINE OXID. PROP & DRAIN LINES

DRAWING NO.: LDW280-18111

EO NO.: A2

ISSUED BY LIAISON - MOREYES X6452 SECTION VDI / J. STRAKOSCH GROUP NO. 335 PL 35

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NAS 9-1100

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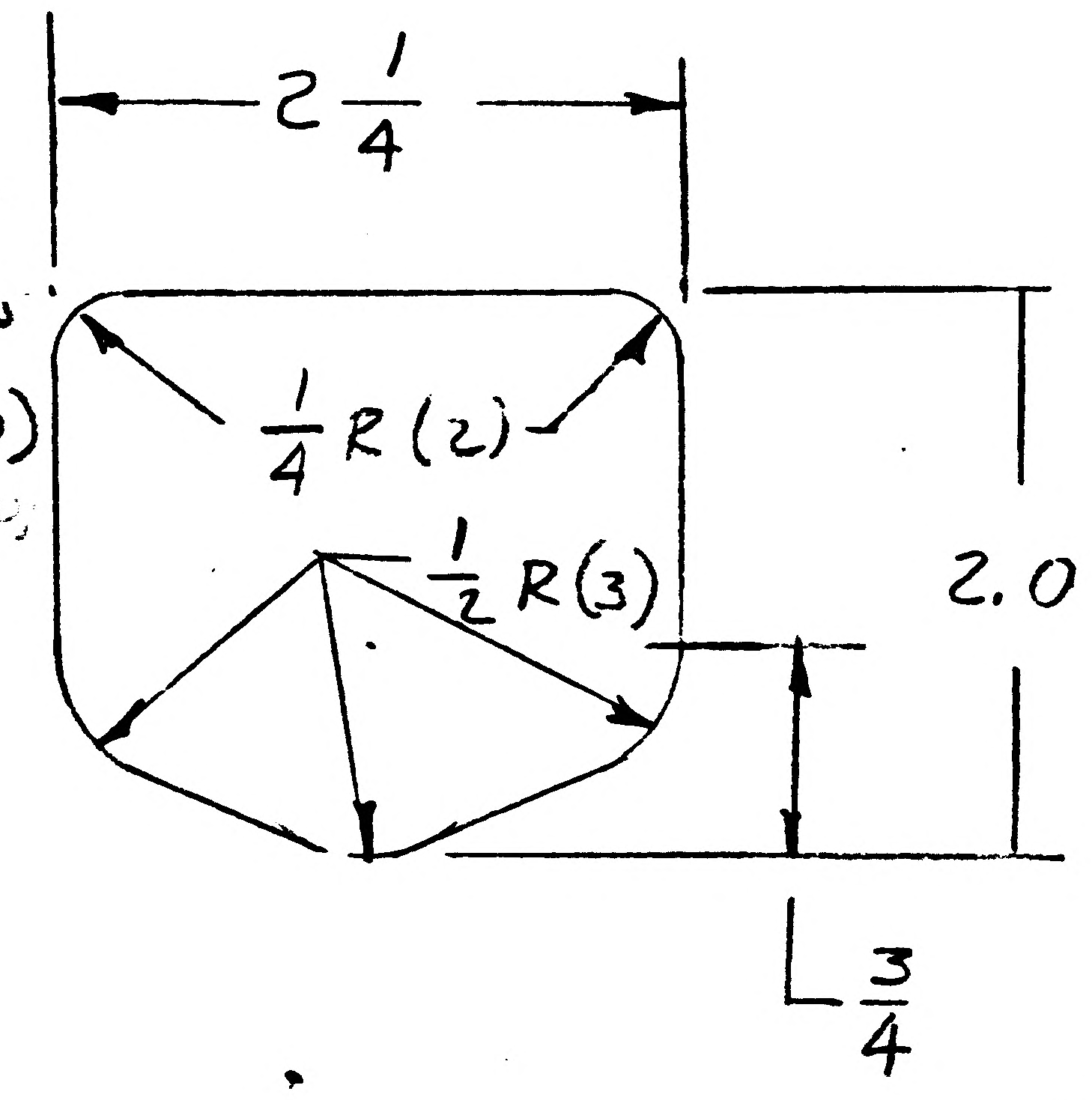
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDWL5[illegible] 18111
EO NO. A3
CONTROL INFO NO. LM 5-11683

ADD
LDW280-18111-13
.063 2024-T3 AL ALY SH
QQ-A-250/4 I&T-EXCEMS
N/A LDW280-28665 (1 REQD)
N/A LDW[illegible]-52665 (1 REQD)



RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO FACILITATE INSTL OF BLANKET QUAD II	ADDED LDW280-18111-13	C UE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 1 (31)	
		LM 2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		A.JOT	REQ	APPROVED BY	[illegible]			[illegible]	CH	RMcE	[illegible]
				DATE	1/24/[illegible]			[illegible]	1-24	1-27-67	1/25/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~ STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIPS D/S - ENG. COM - & THERM SHLD.	LDW 280-18111	A3

ISSUED BY Don Ragas X6454 SECTION VDI GROUP NO. 335 PL 5

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NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280		EO NO. 625
CONTROL INFO NO. LDW2~~~~OA-7464		

REVISE N/A FOR NOTED EFF AS SHOWN QUANTITIES REMAIN THE SAME

DWG No *	EFF	N/A	WAS**	CH LTR	TITLE
LDW280-17846					SEE DWG
-11THRU-19	LM-3(33)	LDW280-53522	LDW280-23522	A3	
-11THRU-19	LM-4(34) THRU LM-15(45) & LTA-3 D/R(46)	LDW280-54522	LDW280-23522		
LDW280-17850-21	LM-3	LDW280-53523	LDW280-23523		
-21	LM-4(34) THRU LM-15(45) & LTA-3 D/R(46)	LDW280-54523	LDW280-23523		
-17	LM-3(33)	LDW280-53520	LDW280-52520		
-17	LM-4(34) THRU LM-15(45) & LTA-3 D/R(46)	LDW280-54520	LDW280-52520	B3	
-17	LM-3(33)	LDW280-53521	LDW280-23521		
-17	LM-4(34) THRU LM-15(45) & LTA-3 D/R(46)	LDW280-54521	LDW280-23521		
-19	LM-3(33)	LDW280-53522	LDW280-23522		
-19	LM-4(34) THRU LM-15(45) & LTA3-D/R(46)	LDW280-54522	LDW280-23522		
LDW280-17981-11,-13&-15	LM-3(33)	LDW280-53520	LDW280-52520	B2	
-11,-13&-15	LM-4(34) THRU LM-15(45) & LTA3-D/R(46)	LDW280-54520	LDW280-52520		
LDW280-18111-15	LM-3(33)	LDW280-53520	LDW280-52520	B2	
-15	LM-4(34) THRU LM-15(45)	LDW280-54520	LDW280-52520		
LDW280M17176-3	LM-3 (33)	LDW280-53523	LDW280-23523	B3	
-3	LM-4(34) THRU LM-15(45) & LTA-3 D/R(46)	LDW280-54523	LDW280-23523		
LDW280M17503-1	LM-3 (33)	LDW280-53523	LDW280-23523	B3	
-1	LM-4(34) THRU LM-15(45) & LTA-3 D/R(46)	LDW280-54523	LDW280-23523		

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	LCD 1533

5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REINFORCE UPPER DECKS	ON * N/A WAS **	JK 6/15/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	NOTED ABOVE		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY	DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		NOT	REQD		6/9/67	VDI			6/9/67	6/12/67		6/12/67	6/13/67
				5									

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	625

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

ENG 32.1 REV 3-65

DWG. NO. LDW280-18111		EO NO. B3
CONTROL INFO NO. LDW280A7539		

IN M/B FOR -15 ADD LTA-3D/R (46) EFF

1 REQD

N/A - LDW280-54520 (REF)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD1242	2

REASON FOR EO: FAILURE OF LTA-3 IN STATIC TEST

DESCRIPTION OF EO: ADDED LTA-3 D/R (46) EFF

Ⓐ GAEC EO RELEASE C
JK 6/20/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R(46)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

	APPROVED BY								
DATE	6/15/67			6/14/67	6/15/67		6/15/67	6-20-67	
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP DES. STAGE ENG. COMP PROP. DRAIN LINES	LDW280-18111	B3

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18111
EO NO. B4
CONTROL INFO NO. LM5-13569

IN M/B FOR -15
REMOVE LM3(33) EFF.

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ 5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE FLAT SURFACES FOR BATTEN STRIPS	IN M/B FOR -15 REMOVED LM3(33) EFF	C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-15

APPROVED BY							
DATE	8/14/67			—	8-10-67	8-10-67	8/14/67	8/10/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S - UPPER DECK SUPT	LDW280-18111	B4

ISSUED BY DON RAGAS X86454 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18111
EO NO. B5
CONTROL INFO NO. LM-5-17100

IN M/B FOR -15 REMOVE LM-2 (32) EFF.

RELEASED BY LIAISO

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

5

REASON FOR EO
TO PROVIDE FLAT SURFACE FOR BATTEN STRIPS.

DESCRIPTION OF EO
IN M/B FOR -15 REMOVED LM-2 (32).

② GAEC C EO RELEASE ✓

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-15

				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JaP			—	JJ	JJ	WRB	
DATE	10/28/67			—	10-10-67	10-10-67	10/28/67	10/10/69
	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S-UPPER DECK SUPPORT	LDW280-18111	B5

ISSUED BY LIAISON J. JARVIS SECTION Y.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 826
CONTROL INFO NO. LDW280B0881

ENG 32.2 REV 3-65

FOR THE FOLLOWING DWGS, ADD LFM420-2370-003, LDW420-2370 SER#1 EFF ; AND ADD N/A LDW420-2386

DWG NO. *	DASH NOS.	NO. REQD	NEXT ASSY	CHANGE NO.	TITLE
LDW280-54520	-11	1	LDW420-2386	A7	SEE DWG
LDW280-54521	-13	1	LDW420-2386	A10	
LDW280-54522	-15	1	LDW420-2386	B2	
LDW280-54523	-11	1	LDW420-2386	A6	
LDW280-51560	-9	1	LDW420-2386	C3	

FOR THE FOLLOWING DWGS, ADD LFM420-2370-003, LDW420-2370 SER#1 EFF. QTY AND NEXT ASSY REMAIN THE SAME.

DWG NO. *	DASH NOS.	CHANGE NO.	TITLE
LDW280-17120	-25	D3	SEE DWG
-17121	-37	D6	
-17122	-29-33	E10	
-17123	-23	C9	
-17228	-11-12-13-14-15-16-17-18	A6	
-17229	-11-12-13-14-15-16-17-18	A6	
-17230	-11-19-21-23	C9	
-17233	-29-30-31-32-33-34-35-36-37-38	D4	
-17234	-13-14-17-19-21-23	B4	
-17310	-11-13-14-15-17-19	B4	
-17330	-31-32-33-34-35-36-37-38	D5	
-17431	-15-17-19	B6	
-17437	-13-14-15-16-17-18	A7	
-17438	-11-13-15	A4	
-17440	-11-13-15	B4	
-17604	-15-17	A5	
-17605	-15-17	A5	
-17606	-23-25	B6	
-17841	-13-19-21-23	A10	
-17842	-11-12-13-14	B5	
-17843	-13-15	A6	
-17845	-11-13-15	A4	
-17846	-11-12-13-14-15-16-17-18-19	A4	
-17850	-17-19-21	B6	
-17981	-11-15	B4	
-18111	-15	B6	
-18301	-33	A6	
LDW280P17497	-9	A5	

FITH **LFM**

30 (5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 12YY	GAEC EO RELEASE

REASON FOR EO: F.I.T.H. TEST

DESCRIPTION OF EO: ON *, ADDED LFM420-2370-003, LDW420-2370 EFF. ON LDW280-54520-11, LDW280-54521-13, LDW280-54522-15, LDW280-54523-11, LDW280-51560-9 ADDED NEXT ASSY LDW420-2386

GAEC EO RELEASE: JK 1/4/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM420	-2370-003	
LM	LDW420	-2370	SER#1

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK | SCRAP)
PRIORITY: C

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				Pc			J.P	Botti
DATE	12/20/67			12/22/67	1/2/68		12/29/67	1-4-68
—	VDI							

DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 826

01-05-67
ISSUED BY ROESSLER / THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18111
EO NO. B7
CONTROL INFO NO. LM-2-4817

IN F/D, B/M & M/B FOR -15 ~

REMOVE: LM-4(34) THRU LM-15(45) AND
LTA-3 D/R EFF.

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: TO PROVIDE FLAT SURFACES FOR BATTEN STRIPS

DESCRIPTION OF EO: IN F/D, B/M & M/B FOR -15
REMOVED: LM-4(34) THRU LM-15(45) AND LTA-3 D/R EFFECTIVITY

GAEC EO RELEASE: (2) B JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45)	
LM		LTA-3 D/R(46)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-15

APPROVED BY	Jap			—	J.M	Ctf	Jap	
DATE	7/8/68			—	6/28/68	6/28/68	7/8/68	7/8/68
6-27-68	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: CLIP ~ DESCENT STAGE UPPER DECK SUPPORT
DRAWING NO.: LDW280-18111
EO NO.: B7

ISSUED BY LIAISON CM GREEN X3604 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18112

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11 (23)	1
		LTA-3DR/1 (460)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
	LDW280-60521	LM-10 (40)	1
	LDW280-60520	LTA-11 (23)	1
		LTA-3DR/1 (460)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
LM	LDW280-60520	LM-10 (40)	1

PART NO. LDW280-18112-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60522	LTA-11 (23)	1
		LTA-3DR/1 (460)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
LM	LDW280-60522	LM-10 (40)	1

PART NO. LDW280-18112-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO

PRIM NO.	JK(001)
707	ME-16-8/20/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890

CONTRACT NO. NAS9-1100
DRAWN BY W.CONROY 8-15-69
LAYOUT BY G.HANSMANN
CHECKED BY D.FASS 8-15-69
GP LEADER 8/19/69
VEH DES INT Thorjussen 8-19-69
STRUCTURE
STRUCTURE N.MARKELOFF 8-19-69
PROJ ENGR 8/19/69
REL GROUP 8/20/69

LINE ITEM

DOCUMENTATION TYPE II

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER-
DESCENT STAGE-UPPER DECK
INBOARD FRAME STIFFENER-STRAP

SIZE B
CODE IDENT NO. 26512
LDW280-18112
SCALE NONE
SHEET 1.00 OF 3

CDR 8-22-69

477.1 12-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18112-13	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.063 × 6 × 52	NONE	88	4C
		LDW280-18112-11	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.080 × 2 × 53	NONE	88	5A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18112
SCALE NONE		SHEET 2.00

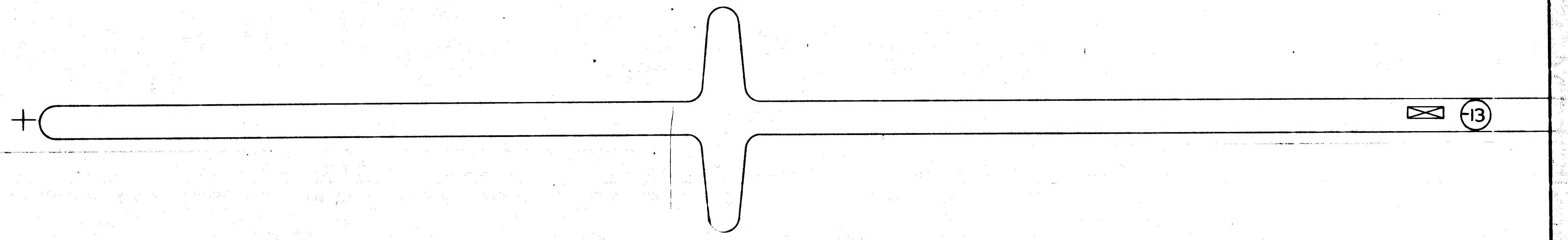
ENG 77.2 7-65

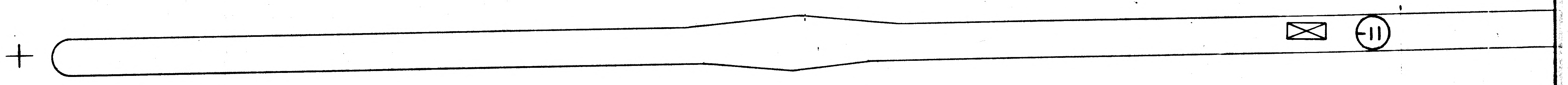
01

NAS 9-1100

8 7 6 5

D C B A





01/02 NAS 9-1100

CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18112		3

FRAME FRAME 2

Tram & overlay o.k.
T.V. 8-5-69

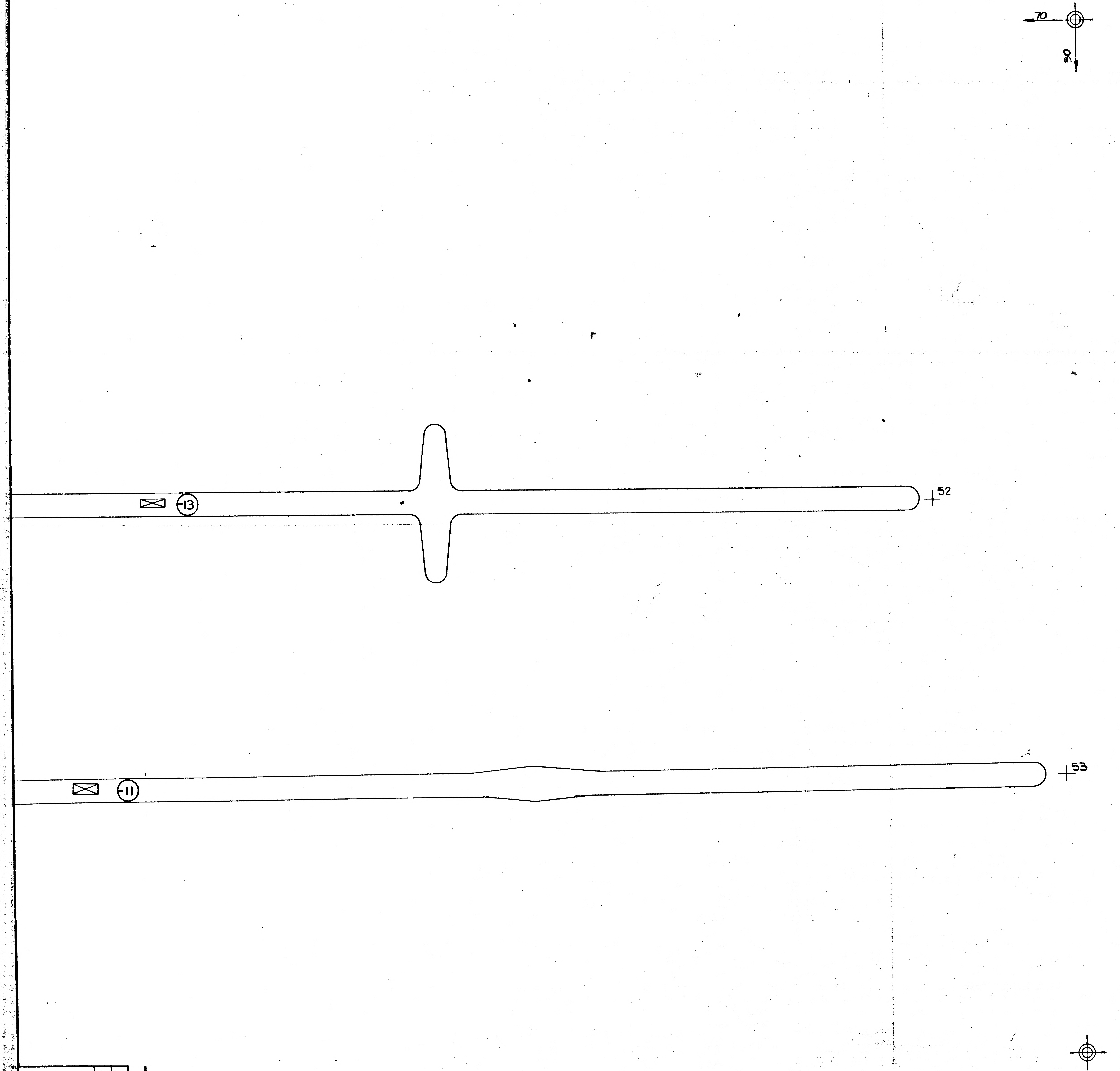
REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

SUPPLEMENTARY DATA

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS



02/02

NAS 9-1100

LDW280-18112

LDW280-18112

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES		CONTRACT NO.	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714
LINEAR TOL .XX	± .03	DRAWN BY	
LINEAR TOL .XXX	± .010	LAYOUT BY	
ANGULAR TOL	± 0°30'	CHECKED BY	
TOL ON LOFTED DELINEATIONS IS		GR LEADER	
		REL GROUP	SIZE J · CODE IDENT NO. 26512 · LDW280-18112
		PROJ ENGR	SCALE FULL · SHEET 3.00
		GOVT APPD	

K2
0

1 FOR PHOTO REPRODUCTION 2FR

DISTR. LIST #

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
1/4 SIZE SHEET AREA (1/4 OF FULL) = 6.5 SQ FT

280-18112	REV	SHEET
		3

FRAME 1 FRAME 2

LDW280-1817 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW 280-25531	LTA-5(15)	1
PART NO. LDW280 -18117-11		GAEC SCH NO. 51-A	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	200	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL^c INFO A

PRIM NO. -207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	FOSTER 9/22/66
LAYOUT BY	BARNES
CHECKED BY	MULLEN 9-26-66
VEH. DES. INT.	10/3/66
STRUCTURES	10/10
STRUCTURES	
WEIGHTS	

RELIABILITY
PROJ ENGR R.M. Carbee 10/10
REL GROUP 10/1/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
DESCENT STAGE-RH AFT BEAM PANEL
INBD VERT STIFF

SIZE B
CODE IDENT NO. 26512
LDW280-18117 A
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1,1.10,2,3					✓	EO A1	INITIAL DRAWING RELEASE EO A1. PARTS MADE PER EO.	LTA-5	NOT	REQD	FOSTER 9-22-66 MULLEN		10/1/66

CHG APPROVED										
LTR	~~GROUP LDR~~	VES. DES. INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
A		10/3/66	10/10							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18117	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18117-11	E	STRAP	AL ALLOY SH	QQ-A-250/12	7075-T6	.125 x 2 x 4 7/8	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18117
A
SCALE NONE
SHEET 2.00

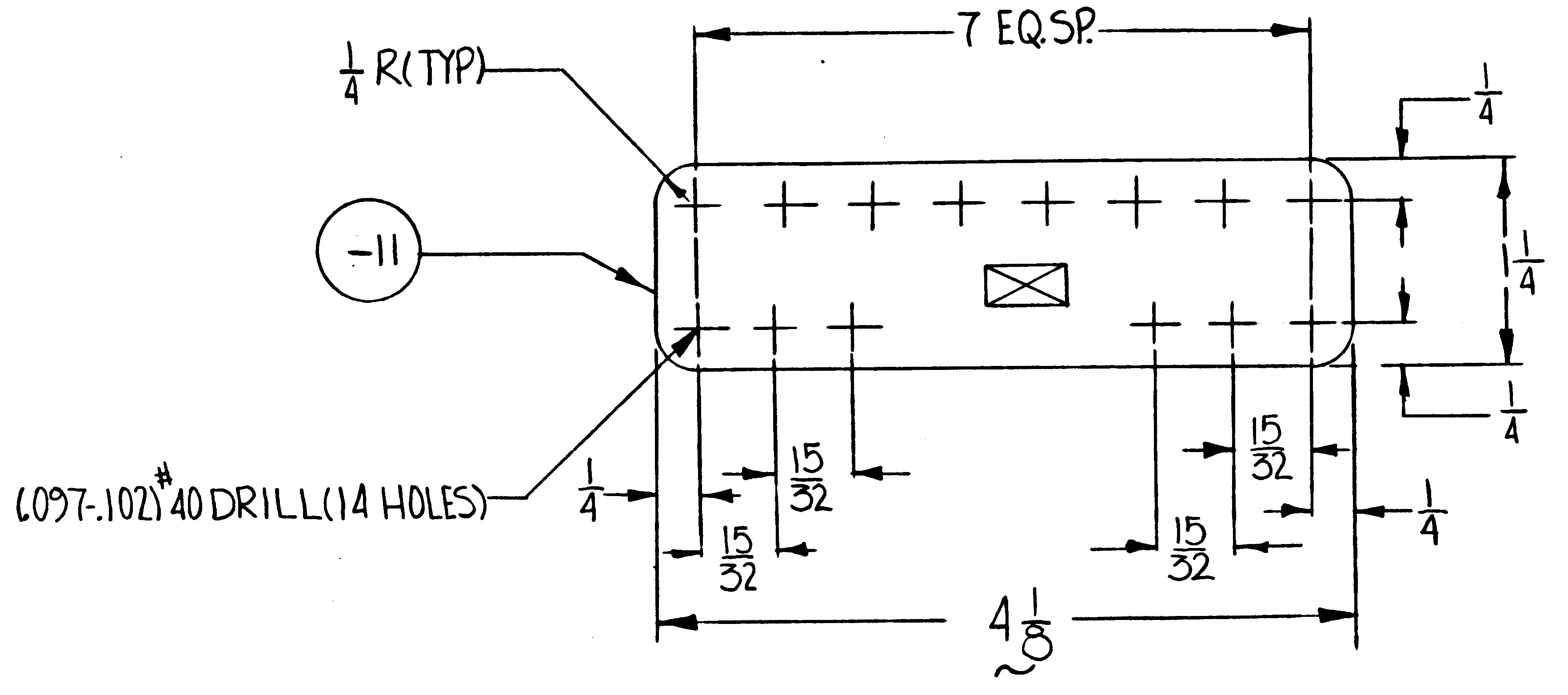
ENG 77.2 7-65

01

NAS 9-1100

NOTE:
1. TOOLING HOLES NOT PERMITTED IN PART.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓



7 EQ.SP.
$\frac{1}{4}$ R(TYP)
-11
(.097-.102) #40 DRILL (14 HOLES)
$\frac{1}{4}$
$\frac{15}{32}$
$\frac{15}{32}$
$\frac{15}{32}$
$\frac{15}{32}$
$\frac{1}{4}$
$4\frac{1}{8}$
$\frac{1}{4}$
$1\frac{1}{4}$
$\frac{1}{4}$

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18117	A
SCALE FULL		SHEET 3.00	

ENG 73.1 6-64

01

NAS 9-1100

LDW280-18118

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
				LM	LDW280-51E23	LM 6(36)	4 EA				
						LM 5(35)					
						LM 4(34)					
						LM 3(33)					
				LM	LDW280-51E23	LM 2(32)	4 EA	LM	LDW280-51E23	LM1 (31)	4 EA
PART NO.		GAEC SCH NO.		PART NO.		GAEC SCH NO.		PART NO.		GAEC SCH NO.	
				LDW280-18118-13-14				LDW280-18118-11,-12		501	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	J	GRUMMAN REF INFO	
LAST DASH NO. USED	-14	PRIM NO. 220	LE(001) WIP 10-4-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.	NAS 9-1100	LINE ITEM	#1
DOCUMENTATION TYPE	II 2		
DRAWN BY	Zuva 9/8/66	WEIGHT	Maleck 10-7
LAYOUT BY	Zuva 9/8/66	RELIABILITY	
CHECKED BY			
GR LEADER	J. Falconer 9/19/66		
EH DESIGN	H. Bischoff 9/20		
STRUCTURE	9/20	PROJ ENGR	RH Embrey (WR) 10-3
STRUCTURE	Hildebrand 9/21	REL GROUP	Bott. 10-13-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD-DESCENT STAGE
HETEOROID PROTECTION
LOWER DECK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18118
SCALE NONE		SHEET 1 OF 3

ENG 77.1 12-65

CDR = 9/16/66

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18118-14	E	SHIELD	AL ALLOY SHT	QQ-A-250/4	2024 T31	.004 X9 X16	NONE	88	
		-13	↑	↑	↑			.004 X9 X16	↑	↑	
		-12	↓	↓	↓			.004 X8 X17	↓	↓	
		LDW280-18118-11	E	SHIELD	AL ALLOY SHT	QQ-A-250/4	2024 T31	.004 X 8 X 17	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18118

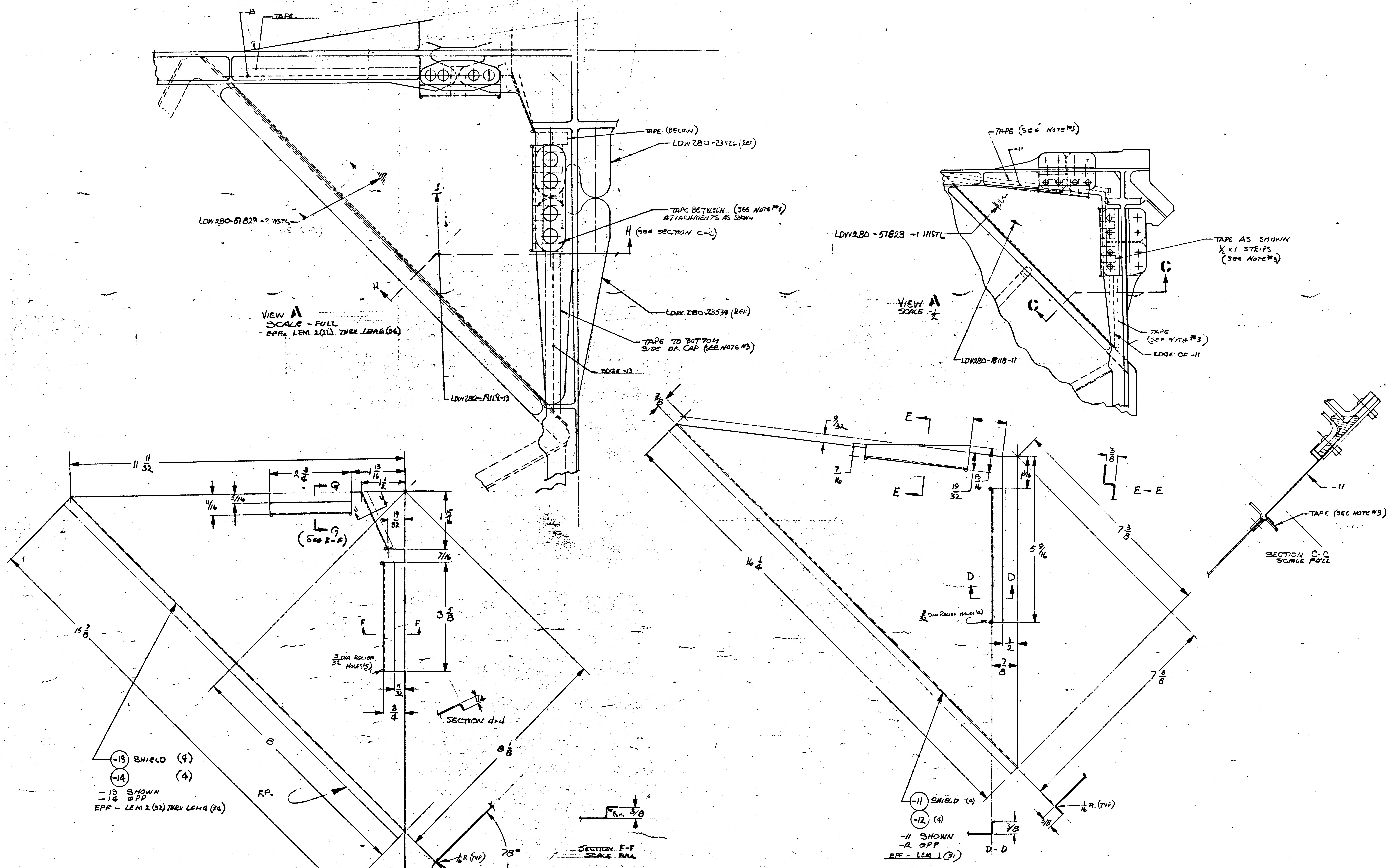
SCALE NONE

SHEET 2

ENG 77.2 7-65

01

NAS 9-1100

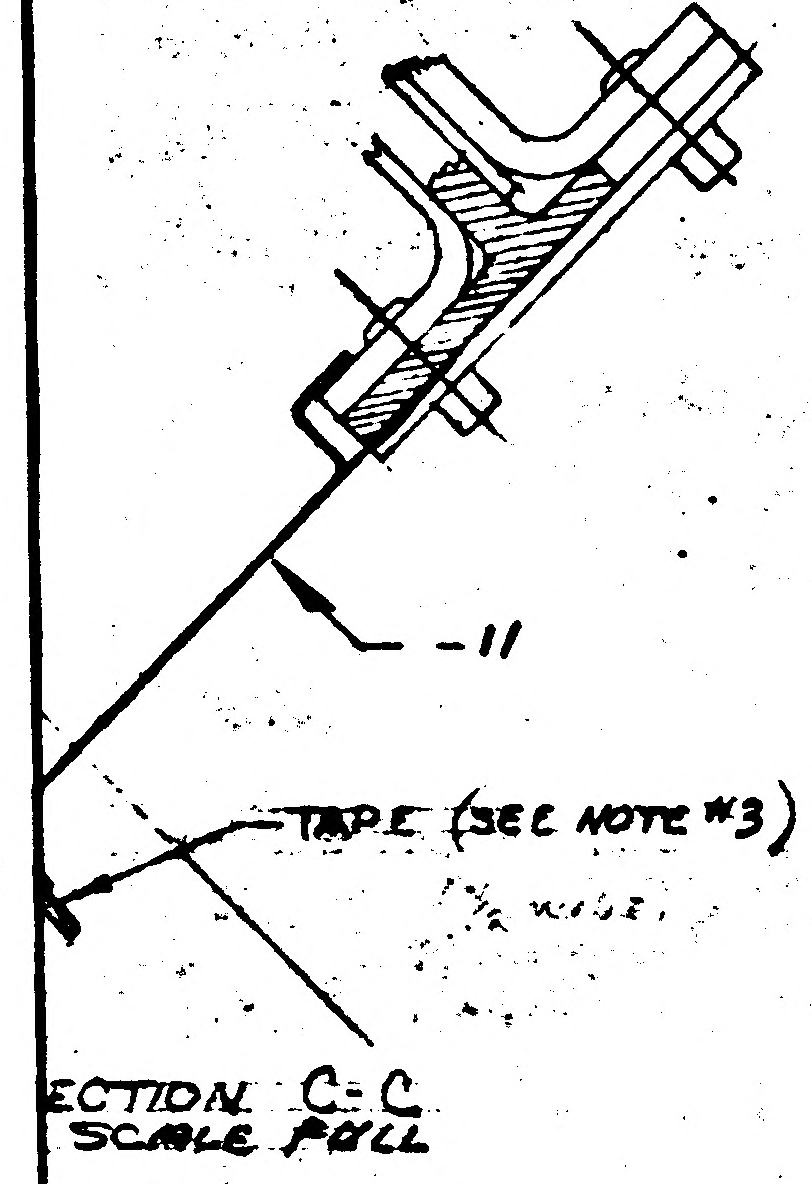

-13
TAPE
TAPE (BELOW)
LDW 280-23526 (REF)
LDW280-51823 -3 INSTL
TAPE BETWEEN (SEE NOTE #3) ATTACHMENTS AS SHOWN
H (SEE SECTION C-C)
H
LDW 280-23534 (REF)
VIEW A
SCALE - FULL
EFF - LEM 2(32) THRU LEM 6(36)
TAPE TO BOTTOM SIDE OF CAP (SEE NOTE #3)
EDGE -13
LDW 280-18118-13
TAPE (SEE NOTE #3)
-11
LDW280-51823 -1 INSTL
TAPE AS SHOWN
½ x 1 STRIPS
(SEE NOTE #3)
C
C
VIEW A
SCALE ½
TAPE
(SEE NOTE #3)
EDGE OF -11
LDW280-18118-11
11 11/32
2 3/4
1 13/16
1/2
G
G
(SEE F-F)
11/16
5/16
19/32
1 5/16
7/16
3 5/8
F
F
3/32 DIA RELIEF HOLES (5)
11/32
3/4
SECTION d-d
1/4
15 7/8
8
8 1/8
F.P.
-13 SHIELD (4)
-14 (4)
-13 SHOWN
-14 OPP
EFF - LEM 2(32) THRU LEM 6(36)
1/16 R (TYP)
3/8
78°
1/16 R.
3/8
SECTION F-F
SCALE FULL
3/8
9/32
7/16
E
E
19/32
13/16
7/16
3/8
E - E
5 9/16
7 3/8
16 1/4
D
D
3/32 DIA RELIEF HOLES (6)
1/2
7/8
7 3/8
-11 SHIELD (4)
-12 (4)
-11 SHOWN
-12 OPP
EFF - LEM 1 (31)
3/8
D - D
1/16 R. (TYP)
3/8
-11
TAPE (SEE NOTE #3)
SECTION C-C
SCALE FULL

01/02

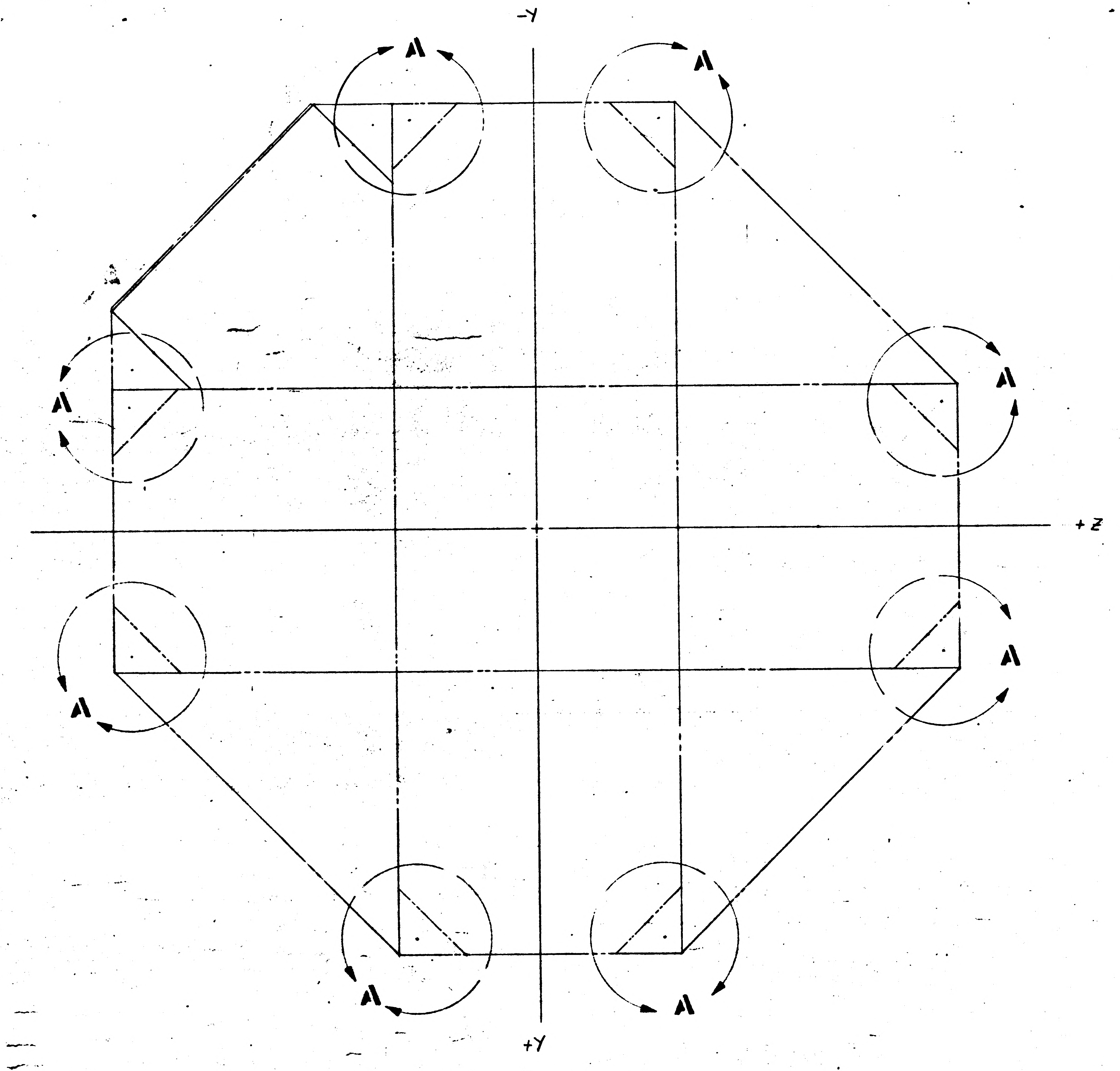
NAS 9-1100

OWN

*3)



ECTION C-C
SCALE FULL



VIEW LOOKING DOWN
LOWER DECK
SCALE- NONE

NOTES:

1. LAYOUT RELEASE - MAY BE REDRAWN ON PRODUCT FORMAT.
2. ALL INFO. NOT REQ'D FOR LDW 280-18118-11,-12,-13
3. POLYIMIDE PRESSURE SENSITIVE TAPE, ½ INCH WID NO. X-1156, MINN. MINING & MFG. CO. (OR EQUIV) (CODE IDENT 7639)
4. ALUMINUM FOIL TO BE IN ACCORDANCE WITH QQ-A250/4 — MIN MECHANICAL PROPERTIES: TENSILE ULT. 60,000 PSI MIN. TENSILE YIELD 55000 PSI MIN THICKNESS .004 ± 10%

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

LDW280-18118

02/02

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-18118	
MODEL OR END ITEM	SCALE NOTED		SHEET 3	

THIS IS AN ORIGINAL DRAWING

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*EMEK

DWG. NO. LE0280
EO NO. 478
CONTROL REF. NO. LDW280A5543

*

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45) QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280M17179	B1	SEE DRAWING
M17193	A3	
M17207	B5	
M17272	B1	
M17282	B1	
M17299	B1	
M17301	B4	
M17331	D1	
M17360	A1	
M17488	B1	
M17502	B1	
M17506	A1	
M17641	A3	
-17131	C4	
-17162	D1	
-17231	B5	
-17362	B2	
-17375	B3	
-17661	A1	
-17742	A1	
-17969	B1	
-18062	B2	
-18101	A4	
-18118	A1	
-23689	A1	
-23691	B3	
-23694	B1	
-23722	A4	
-54516	B4	
LDW280-		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL REQUIREMENTS	FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.	FR 2/23/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38) LEM-9(39)	
LEM		LEM-10(40) LEM-11(41) LEM-12(42)	
LEM		LEM-13(43) LEM-14(44) LEM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D							WJH		RMC	
				DATE	2/9/67				2/15/67		2-16-67	2-17-67
REVISE DWG	RECORD EO	REWORK	SCRAP	6	V.D.I.	SUPPORT	REL IAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LE0280	478

ISSUED BY M. GREY / J. STRAKOSCH X.1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

01

NAS 9-1100

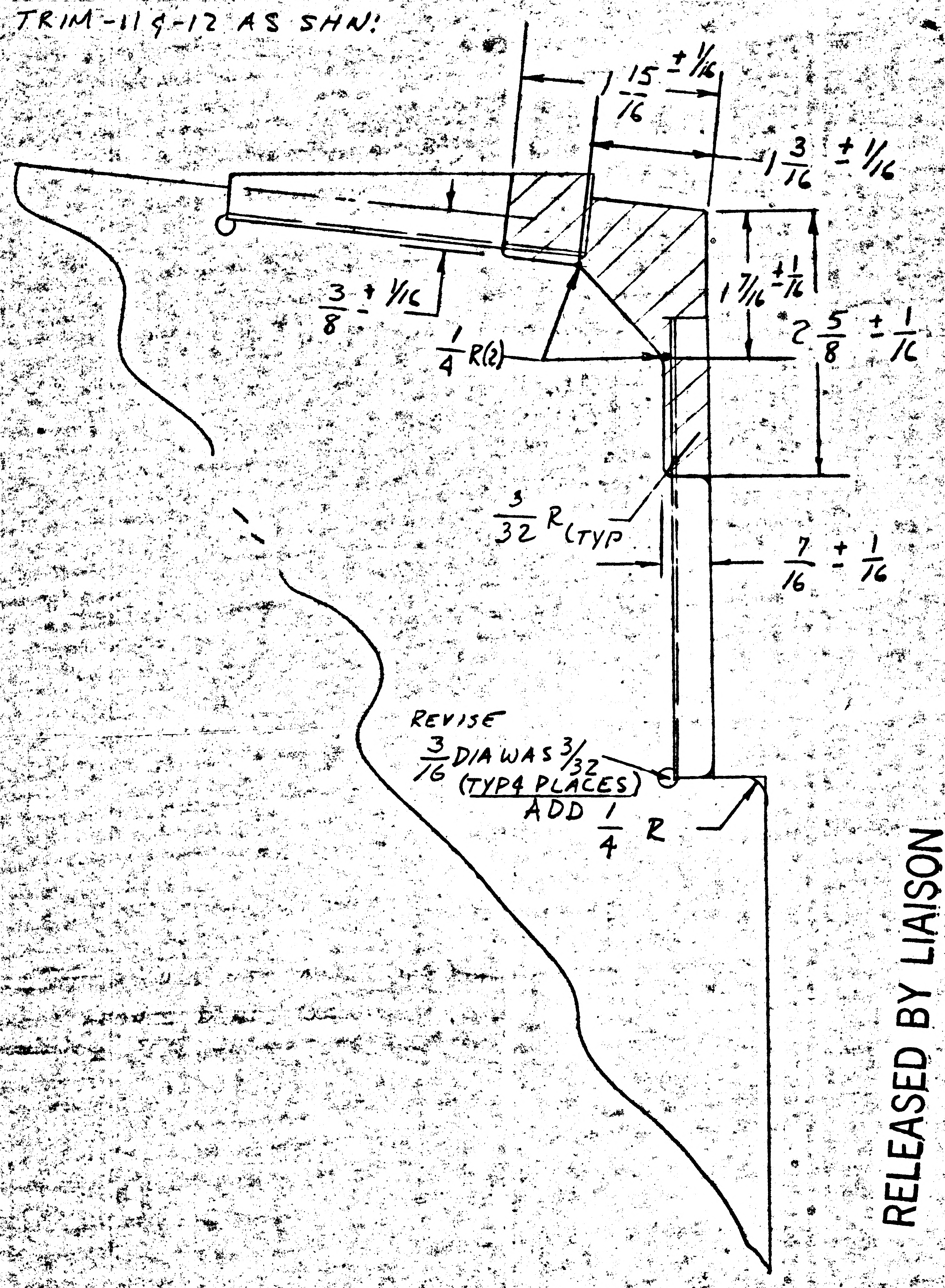
B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 -18118
EO NO. A2
CONTROL INFO NO. LM5-11872

TRIM -114-12 AS SHN:



$1\frac{15}{16} \pm \frac{1}{16}$
$1\frac{3}{16} \pm \frac{1}{16}$
$1\frac{7}{16} \pm \frac{1}{16}$
$2\frac{5}{8} \pm \frac{1}{16}$
$\frac{3}{8} \pm \frac{1}{16}$
$\frac{1}{4}$ R(2)
$\frac{3}{32}$ R (TYP
$\frac{7}{16} \pm \frac{1}{16}$
REVISE
$\frac{3}{16}$ DIA WAS $\frac{3}{32}$
(TYP 4 PLACES)
ADD $\frac{1}{4}$ R

RELEASED BY LIAISON

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO FACILATE INSTL OF DETAIL PART

DESCRIPTION OF EO: TRIMMED -114-12 REVISED CALLOUT 3/16 DIA WAS 3/32 DIA (TYP 4 PLACES)

GAEC EO RELEASE: C JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 1 (31)	
LM			

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			~	JFJ	CH	RMC	
✓		✓		DATE	2/21/67			~	2-22-67	2-21-67	2-24-67	2-22-67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SKIN D/S - METEOROID PROTECTION - LOWER
DRAWING NO.: LDW280-18118
EO NO.: A2

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO 335 PL 5

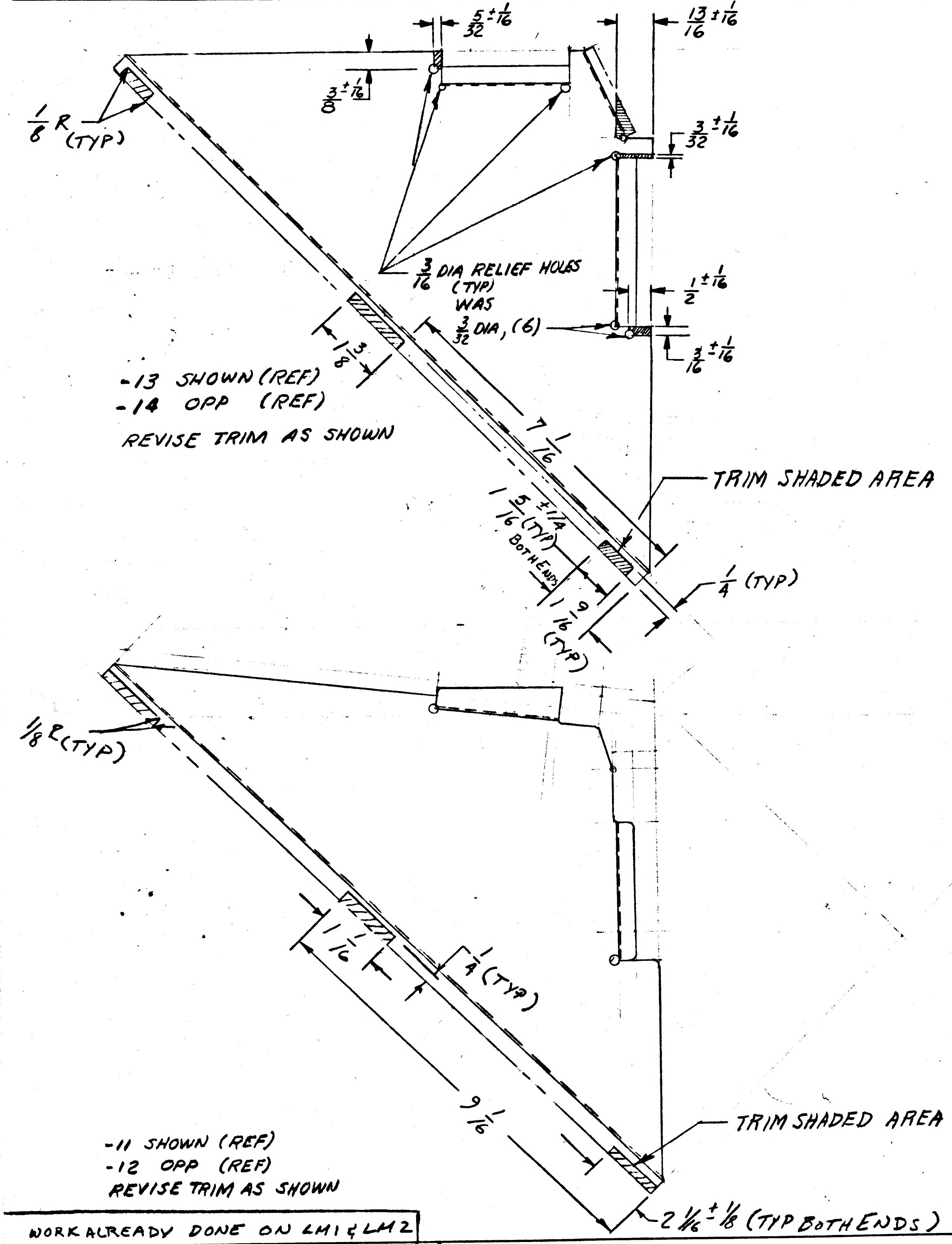
NAS 9-1100

01
NAS 9-1100

B **RELEASED BY LIAISON**
NG 32.2 REV 3.65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW 280-18118		EO NO. A3
CONTROL INFO NO. LM 5-11945		



5/32 ± 1/16
13/16 ± 1/16
3/8 ± 1/16
1/8 R (TYP)
3/32 ± 1/16
3/16 DIA RELIEF HOLES (TYP) WAS 3/32 DIA, (6)
1/2 ± 1/16
3/16 ± 1/16
1 3/8
-13 SHOWN (REF)
-14 OPP (REF)
REVISE TRIM AS SHOWN
7 1/16
TRIM SHADED AREA
1 5/16 ± 1/4 (TYP) BOTH ENDS
1/4 (TYP)
1 9/16 (TYP)
1/8 R (TYP)
1 1/16
1/4 (TYP)
9 1/16
TRIM SHADED AREA
-11 SHOWN (REF)
-12 OPP (REF)
REVISE TRIM AS SHOWN
2 1/16 ± 1/8 (TYP BOTH ENDS)

WORK ALREADY DONE ON LM1 & LM2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO FACILITATE INSTL OF PART	REVISED TRIM -11, -12, -13, & -14. ON -13 & -14 CALLOUT 3/16 DIA (TYP) WAS 3/32 DIA (6)	R JK 3/1 32 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
		LM-2 (32)	
		THRU LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY	LJT			~	JF	CH	RMC	JK
				DATE	3/3/67			~	3-4-67	3-4-67	3-4-67	3-4-67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN - D/S - METEOROID PROTECTION - LOWER	LDW280-18118	A3

ISSUED BY NIGHTS E.J. Comiskey / DAYS DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

ENG 22.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1438
CONTROL INFO NO. LDW280B7423

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18088	B3	SEE DWG
-18093	B3	
-18095	B2	
-18110	B1	
-18118	A4	
-18119	A4	
-18137	B3	
-18140	B1	
LDW280-18190	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3587 PKG 53 PG 8 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 5/6/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				RBH	WJA		JAP	
DATE	4/1/69			4-2-69	4/5/69		4/9/69	5-5-69

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO. 1438

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1526
CONTROL INFO NO. LDW23 9 8105

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-17998 ✓	SEE DWG	E2
18038 ✓		B5
18088 ✓		B4
18093 ✓		B4
18095 ✓		B3
110 ✓		B2
118 ✓		A5
119		A5
LDW280-18140	SEE DWG	B2

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 3890 PKG 99 PG 25 & 26 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23 [redacted]) REQMTS

GAEC EO RELEASE: 8-5-69; 8/9/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT
APPROVED BY	JEF				N			Bauman
DATE	7/29/69			7/29/69	8/2/69		8/4/69	8-9-69

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO. LEO 280 | EO NO. 1526

8-22-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1733
CONTROL INFO NO. LDW280B9167

FOR THE DRAWINGS LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS.*
*APPLICABLE DASH NO.

DRAWING NUMBER *	NEXT ASSY	DWG. TITLE	CHG. LTR
LDW280-54838-1	LDW280-28835	SEE DWG	A2
-54839-1	-28835		A2
-18358-11,-13,-15 & -17	-54643		A3
-18358-11,-13,-15, & -17	-54832		
-18358-11,-13,-15 & -17	-54838		
-18358-11,-13,-15 & -17	-54839		
-18359-11 & -19	-54832		A3
-18359-15 & -19	-54838		
-18359-17 & -19	-54839		
-18359-13 & -19	-54643		
-18360-11,-12, & -13	-54643		A3
-18360-11,-12 & -19	-54832		
-18360-11,-12 & -15	-54838		
-18360-11,-12 & -17	-54839		
-18361-13 & -15	-54643		A3
-18361-11	-54832		
-18361-13 & -15	-54838		
-18361-17	-54839		
-51823-3 & -4	-54508		A4
LDW280-18118-13 & -14	LDW280-51823	SEE DWG	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG59 CCA2205 (5)

REASON FOR EO
LMMP REDESIGN. 3 TANK EXPANSION

DESCRIPTION OF EO
REMOVED LM-10(40) THRU LM-14(44) EFF. FROM - *

GAEC EO RELEASE
JK 10/23

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK	SCRAP ✓

APPROVED BY								
DATE	—			10-20-69			10/20/69	10/22/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO280
EO NO.: 1733

CDR 10-24
ISSUED BY D.SHAPIRO/P.THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18119

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51818	LM6(36)	1 EA
		LM5(35)	1 EA
		LM4(34)	1 EA
		LM3(33)	1 EA
		LM2(32)	1 EA
LEM	LDW280-51818	LEM1(31)	1 EA
PART NO. LDW280-18119-11,-13,-15,-17-19		GAEC SCH NO. 523	

✓

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00			
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED E

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO.	LE(001)		
220	MP-9	176	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	Zuva 9/15/66	WEIGHTS	S Rohesch 9-29
LAYOUT BY	Zuva 9/15/66	RELIABILITY	
CHECKED BY			
GR LEADER	9/15/66		
VEH. DESIGN	9/16		
STRUCTURES	9/16	PROJ ENGR	R.M. Carbee Ⓔ 9-17
STRUCTURES	Hilderman 9-16	REL GROUP	J Tagliavia 10/29/66
THERMO	10-26-66		

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB - QUAD II DESCENT STAGE,
METEOROID PROTECTION - LOWER

SIZE	CODE IDENT NO.	
B	26512	LDW280-18119
SCALE NONE		SHEET 1 OF 3

ENG 77.1 12-65

CDR = 9/16/66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18119-19	E	DOUBLER	AL ALLOY SHT	QQ-250/A	2024 T3	.004 X 2 X 4	N2X18	38	
						1		LDW280-18119-17	E	DOUBLER	↑ ↑	↑ ↑	↑	.004 X 2 X 4	↑	↑	
						1		LDW280-18119-15	E	STIFFENER				.004 X 1 X 16			
						1		LDW280-18119-13	E	STIFFENER	↓ ↓	↓ ↓	↓	.004 X 1 X 23	↓	↓	
						1		LDW280-18119-11	E	WEB	AL ALLOY SHT	QQ-250/A	2024 T3	.004 X 18 X 35	[illegible]	38	
						1											

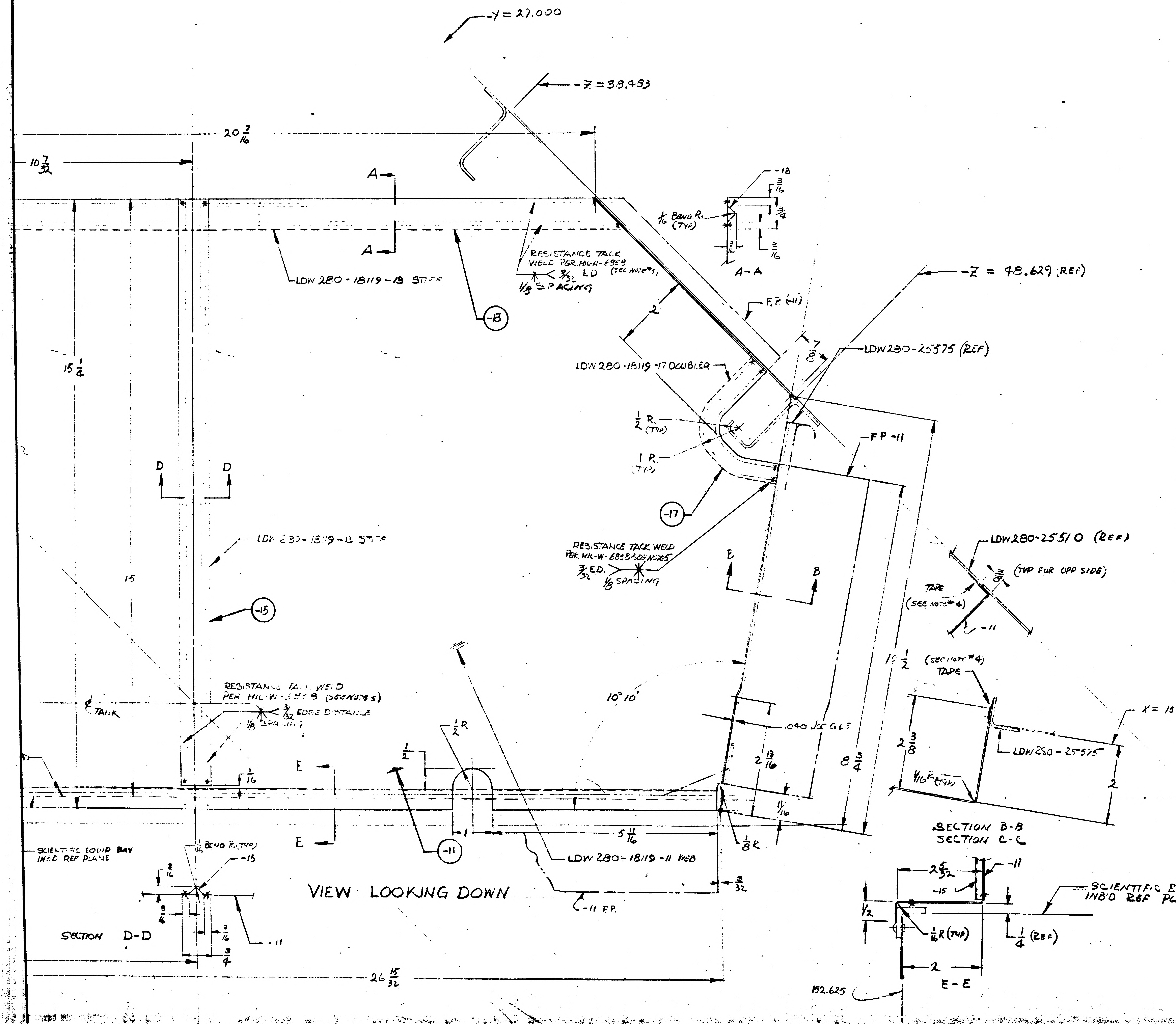
SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						38	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18119
SCALE NONE
SHEET 2

ENG 77.2 7-65


Y = 27.000
Z = 38.493
Z = 48.629 (REF)
X = 152.625 (REF)
20 7/16
10 7/32
15 1/4
15
A
A-A
1/16 BEND R. (TYP)
RESISTANCE TACK WELD PER MIL-W-6858 (SEE NOTE 5)
3/32 ED
1/8 SPACING
LDW 280-18119-13 STIFF
-13
-18
F.P. (-11)
LDW 280-18119-17 DOUBLER
LDW280-25575 (REF)
1/2 R. (TYP)
1 R. (TYP)
FP -11
-17
RESISTANCE TACK WELD PER MIL-W-6858 SEE NOTES
D
E
B
LDW 280-18119-13 STIFF
-15
LDW280-25510 (REF)
TAPE (SEE NOTE 4)
(TYP FOR OPP SIDE)
10°10'
1 1/2
(SEE NOTE 4) TAPE
.040 JOGGLE
2 13/16
8 3/4
2 3/8
LDW280-25575
1/16 R (TYP)
2
RESISTANCE TACK WELD PER MIL-W-6858 (SEE NOTES)
3/32 EDGE DISTANCE
1/8 SPACING
℄ TANK
1/2 R
1/2
1/16
5 11/16
11/16
1/8 R
-11
LDW 280-18119-11 WEB
3/32
℄ -11 F.P.
SCIENTIFIC EQUIP BAY INBD REF PLANE
1/16 BEND R (TYP)
-15
3/16
SECTION D-D
26 15/32
3/4
VIEW LOOKING DOWN
SECTION B-B
SECTION C-C
2 5/32
SCIENTIFIC EQUIP BAY INB'D REF PLANE
1/2
1/16 R (TYP)
1/4 (REF)
E-E
152.625
7.050

NOTES:

1. LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT
2. ALL INFORMATION NOT REQ'D TO MANUFACTURE LDW280-18119 -11, -13, -15, -17, & -19 IS FOR REF ONLY.
3. NO TOOLING HOLES PERMITTED.
4. POLYIMIDE PRESSURE SENSITIVE TAPE, 1 IN WIDE NO. X-1156, MAY BE PURCHASED FROM MINN. MIN & MFG. CO. OR EQUIVALENT. (CODE IDENT 763[illegible])
5. WELD THRU SEALANT LSP 14.400.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL f DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

LDW280-18119

LDW280-18119

02/02

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

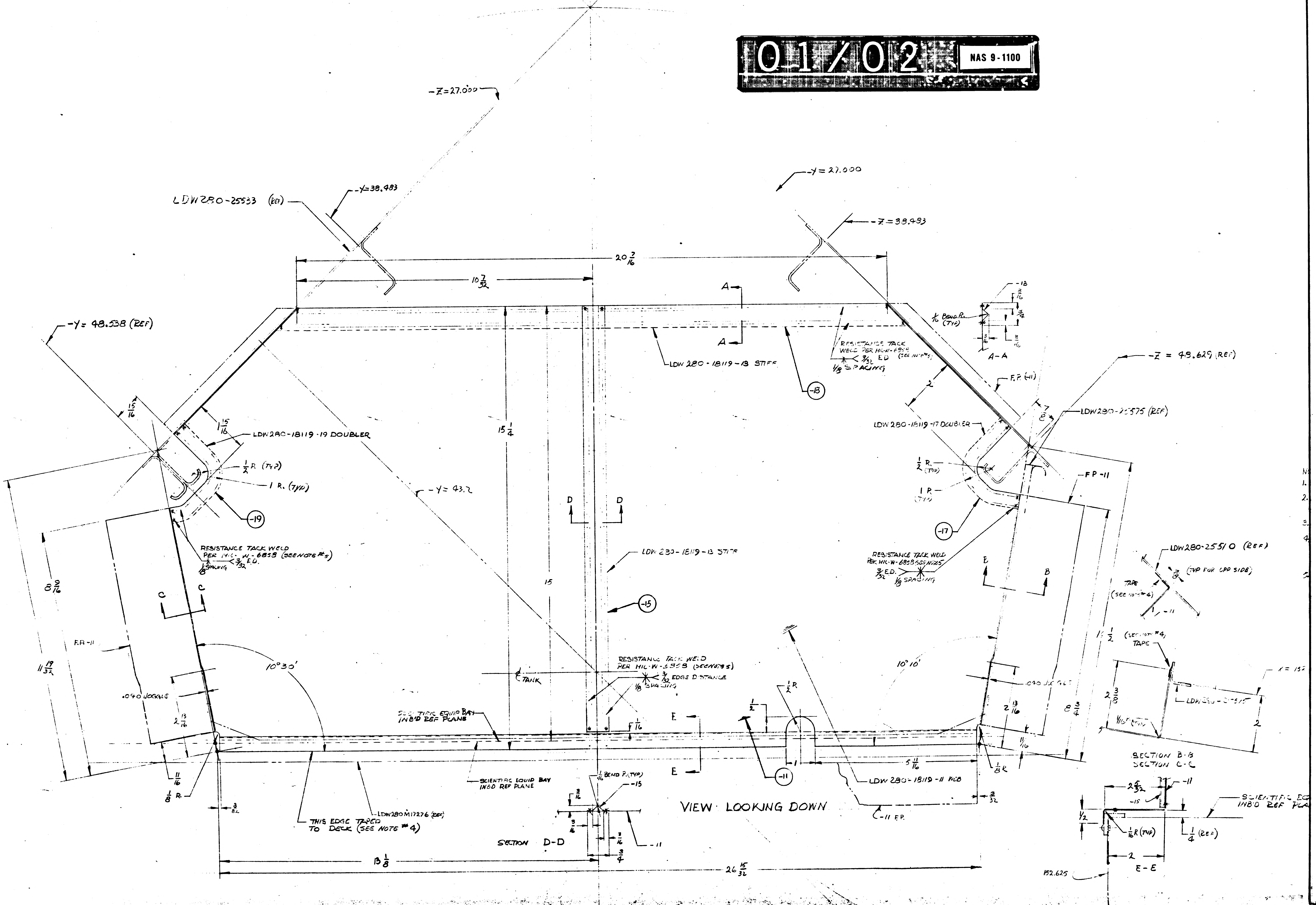
MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LEM	J	26512	LDW280-18119
	SCALE FULL		SHEET 3

THIS IS AN ORIGINAL DRAWING

CRD 9/15/66

220-147

01/02 NAS 9-1100


-Z=27.000
-Y=38.483
LDW280-25533 (REF)
-Y=27.000
-Z=38.493
20 3/16
10 7/32
A
A
-18
3/16
3/4
3/16
3/16
1/16 BEND R. (TYP)
A-A
RESISTANCE TACK WELD PER MIL-W-6858 (SEE NOTE #5)
3/32 ED
1/8 SPACING
LDW 280-18119-13 STIFF
-13
-Z = 48.629 (REF)
F.P. (-11)
2
7/8
LDW280-25575 (REF)
LDW 280-18119-17 DOUBLER
1/2 R. (TYP)
1 R. (TYP)
FP-11
-17
-Y= 48.538 (REF)
15/16
1 15/16
LDW280-18119-19 DOUBLER
1/2 R. (TYP)
1 R. (TYP)
-19
-Y= 43.2
15 1/4
15
D
D
LDW 280-18119-13 STIFF
-15
RESISTANCE TACK WELD PER MIL-W-6858 (SEE NOTE #5)
3/32 E.D.
1/8 SPACING
C
C
8 9/16
11 19/32
F.P.-11
.040 JOGGLE
2 13/16
10°30'
11/16
1/8 R.
3/32
℄ TANK
SCIENTIFIC EQUIP BAY INB'D REF PLANE
RESISTANCE TACK WELD PER MIL-W-6858 (SEE NOTE 5)
3/32 EDGE DISTANCE
1/8 SPACING
1/16
E
E
1/2
1/2 R
1
5 11/16
-11
LDW 280-18119-11 WEB
-11 F.P.
3/32
SCIENTIFIC EQUIP BAY INB'D REF PLANE
THIS EDGE TAPED TO DECK (SEE NOTE #4)
LDW280M17276 (REF)
1/16 BEND R. (TYP)
-15
3/16
3/16
3/16
3/4
-11
SECTION D-D
13 1/8
26 15/32
VIEW LOOKING DOWN
RESISTANCE TACK WELD PER MIL-W-6858 (SEE NOTE 5)
3/32 E.D.
1/8 SPACING
E
B
B
10°10'
.040 JOGGLE
2 13/16
8 3/4
11/16
1/8 R
11 1/2
LDW280-25510 (REF)
3/8 (TYP FOR OPP SIDE)
TAPE (SEE NOTE #4)
1 -11
(SEE NOTE #4) TAPE
X = 152
2 3/8
1/16 R (TYP)
LDW280-25575
2
SECTION B-B
SECTION C-C
2 5/32
-11
-15
1/2
1/16 R (TYP)
1/4 (REF)
SCIENTIFIC EQ INB'D REF PLA
2
E-E
152.625
N
1.
2.
3.
4.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18119 | EO NO. A1
CONTROL INFO NO. LDW 280A-0946

IN B/M

DETAILS -11, -13, -15, -17 & -19 FINISH - NONE WAS: 88

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
FINISH TO BE APPLIED AFTER WELDING	REMOVED ANODIZE CALLOUT (88) FROM -11, -13, -15, -17 & -19	LE 10.8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP
LM		LM1(31) THRO	LM 6 (36)	✓		✓	

APPROVED BY								
DATE	10/4/66				10/5/66		10-8	10/7/66
	YD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~EOP~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB - QUAD II DESCENT STAGE, METEOROID PROTECTION - LOWER	LDW 280-18119	A1

ISSUED BY ZUVER X1153 10/3/66 SECTION YD1 GROUP NO. ____ PL 35 EMF

01 NAS 9-1100

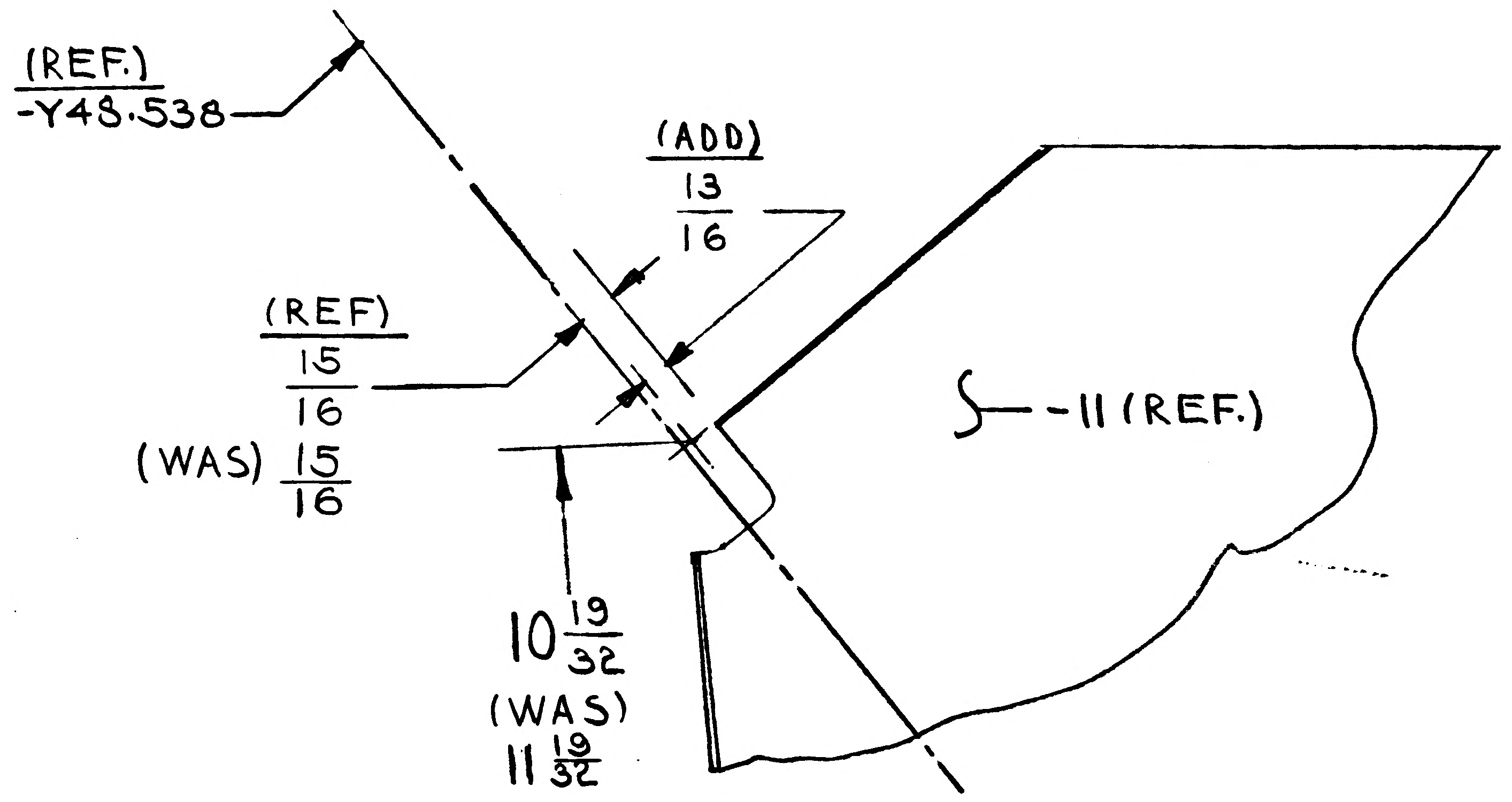
H C.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18119
EO NO. A2
CONTROL INFO NO. LM-2-2894

IN F/D. ON-11 REVISE CUTOUT DIMENSIONS TO AGREE WITH EO.



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: DRAFTING ERRORS

DESCRIPTION OF EO: IN F/D. ON-11 $10\frac{19}{32}$ WAS $11\frac{19}{32}$; $\frac{15}{16}$(REF) WAS $\frac{15}{16}$; ADDED $\frac{13}{16}$

GAEC EO RELEASE:

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQ'D

APPROVED BY						STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY						caw	caw	RMC	
DATE	10/19					10-13-66	10-13-66	10-17-66	10-13-66
10-13-66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER		STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: E2
DRAWING TITLE: WEB~QUAD II DESCENT STAGE METEROID PROTECTION LOWER
DRAWING NO.: LDW280-18119
EO NO.: A2

ISSUED BY LIAISON T.J.MARTIN X3604 SECTION V.D.I. GROUP NO. 335 PL 35 EMF

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NAS 9-1100

EN 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1438
CONTROL INFO NO. LDW280B7423

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18088	B3	SEE DWG
-18093	B3	
-18095	B2	
-18110	B1	
-18118	A4	
-18119	A4	
-18137	B3	
-18140	B1	
LDW280-18190	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG 8 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 5/6/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/1/69			4-2-69	4/8/69		4/9/69	5-5-69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1438

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1526
CONTROL INFO NO. LDW280B 8105		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
LDW280-17998 ✓	SEE DWG	E2	
18038 ✓		B5	
18088 ✓		B4	
18093 ✓		B4	
18095 ✓		B3	
110 ✓		B2	
118 ✓		A5	
119 ✓		A5	
LDW280-18140	SEE DWG	B2	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 25 & 26 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23 [redacted]) REQMTS

GAEC EO RELEASE: 8-5-69; JK 8/9/9; Bauman 8-9-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	PET				N			
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP	DATE	7/29/69 VDI	SUPPORT	RELIAB. GROUP	7/29/69 GROUP LEADER	8/2/69 STRESS GROUP	LIAISON ENGRG	8/4/69 PROJ ENGRG	8-9-69 ~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1526

8-22-69
ISSUED BY G. HANSMANN X87222 (NL) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280		EO NO. 1732
CONTROL INFO NO. LDW280B9166		

FOR THE DRAWINGS LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS. *

DRAWING NUMBER *	NEXT ASSEMBLY	DWG. TITLE	CHG. LTR
LDW280-51642-5-1	LDW280-58553	SEE DWG	B5
-18140-11,-21,-23,-25,-27&-29	-51642		B3
-18201-15&-17&-19	-51642		B6
-18206-15,-17,-19&-21	-51642		B6
-51818-1	-58553		B2
-18119-11,-13,-15,-17&-19	-51818		A6
-28835-9	-58553		C5
-18190-13	-28835		D3
-54643-1	-28835		A2
LDW280-54832-1	LDW280-28835	SEE DWG	A2

* APPLICABLE DASH NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 59 CCA 2205	(5)

REASON FOR EO: LMMP REDESIGN. 3 TANK EXPANSION

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF. FROM - *

GAEC EO RELEASE: JK 10/23

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	WP			PBT		WP	
DATE	—			10-20-69	10/21/69	10/20/69	10/22/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE ABOVE	LEO 280	1732

CDR 10-24

ISSUED BY D.SHAPIRO/P.THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18120

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23555	LEM-6 ㊱	3
		LEM-5 ㉟	
		LEM-4 ㉞	
		LEM-3 ㉝	
	LDW280-23555	LEM-2 ㉜	
	LDW280-28555	LEM-1 ㉛	
LEM	LDW280-28555	LTA-8 ⑱	3
PART NO. LDW280-18120 -15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23555	LEM-6 ㊱	1EA
		LEM-5 ㉟	
		LEM-4 ㉞	
		LEM-3 ㉝	
	LDW280-23555	LEM-2 ㉜	
	LDW280-28555	LEM-1 ㉛	
LEM	LDW280-28555	LTA-8 ⑱	1EA
PART NO. LDW280-18120 -11, -13, -14		GAEC SCH NO. 501	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00					
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	—	GRUMMAN REL INFO		
		PRIM NO.	LE(001)	
LAST DASH NO. USED	-15	207	MP-9-9-6	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY	G.W.H.	RELIABILITY	
LAYOUT BY	HANSMANN		
CHECKED BY			
GP LDR	9/1/66		
V.D.I.			
STRUCT	W/H 9/8/66	PROJ ENGR	R.M. Carbee (EJ) 9-8
STRUCT	Hildesman 9-8	REL GROUP	Botts 9-20-66
WEIGHTS	L. Garcia 9/16/66		

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE ~ R.H. UPPER
OUTRIGGER ~ LEM/SLA UMBILICAL

SIZE	CODE IDENT NO.	
B	26512	LDW280-18120
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

C.D.R. 9/2/66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18120-15	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024	.032 x 1 3/4 x 1 3/4	T4	88	
		-14	E	ANGLE			2024-T3	.032 x 1 5/8 x 5 1/2	NONE	88	
		-13	E	ANGLE			2024-T3	.032 x 1 5/8 x 5 1/2	NONE	88	
		LDW280-18120-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x 3 1/2 x 6 3/4	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T4	AL. HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

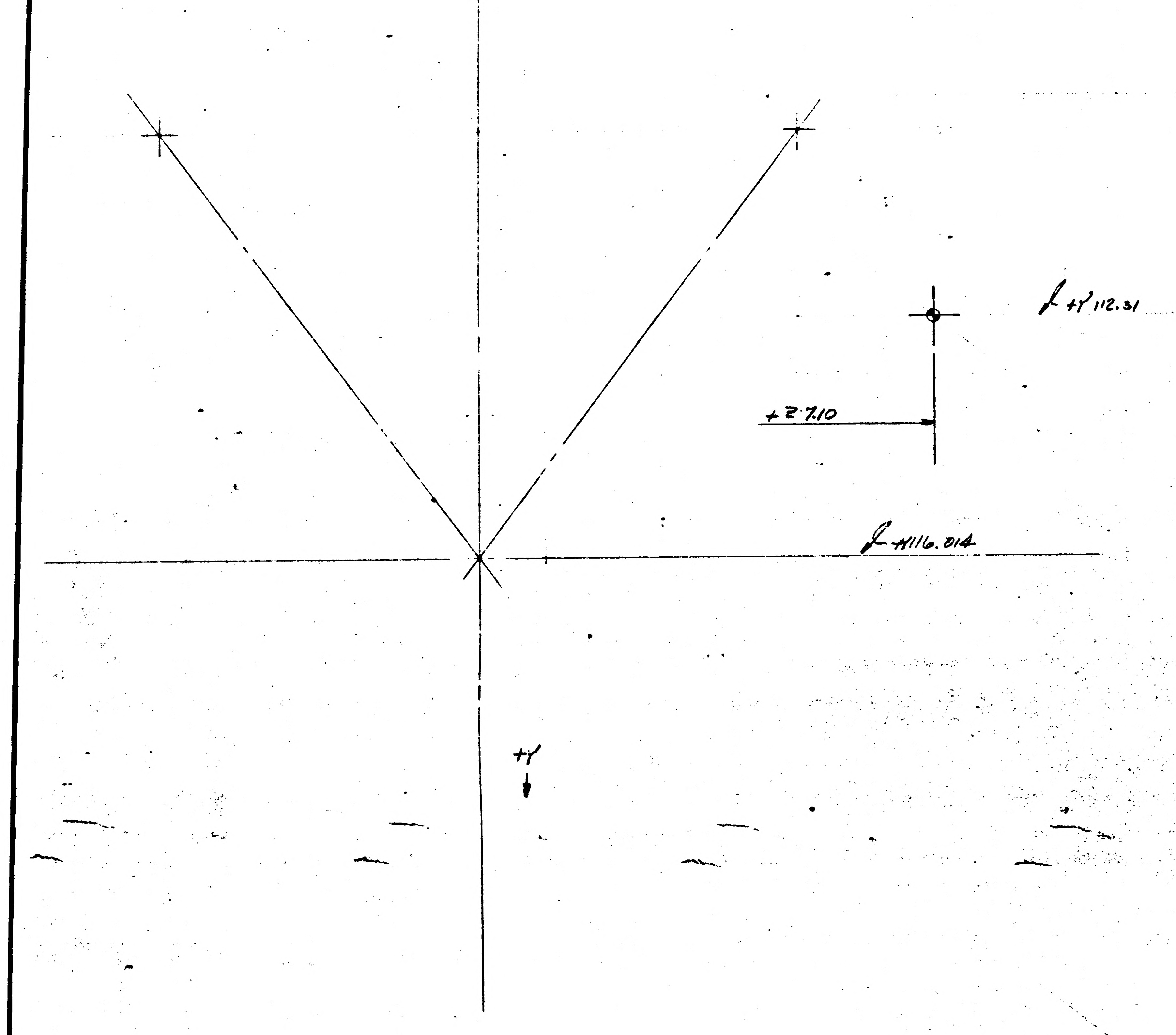
SIZE B
CODE IDENT NO. 26512
LDW280-18120
SCALE NONE
SHEET 2.00

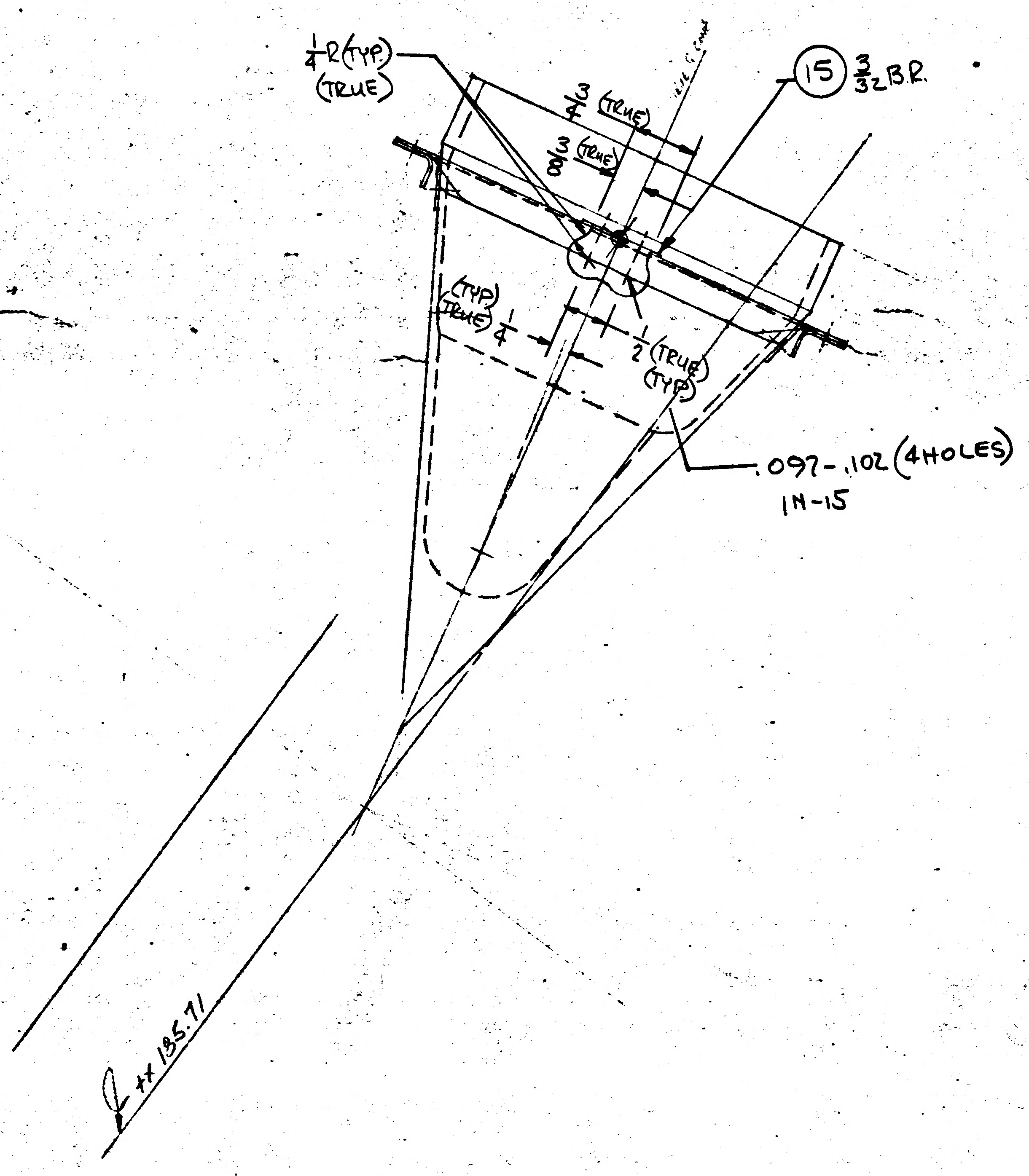
ENG 77.2 7-65

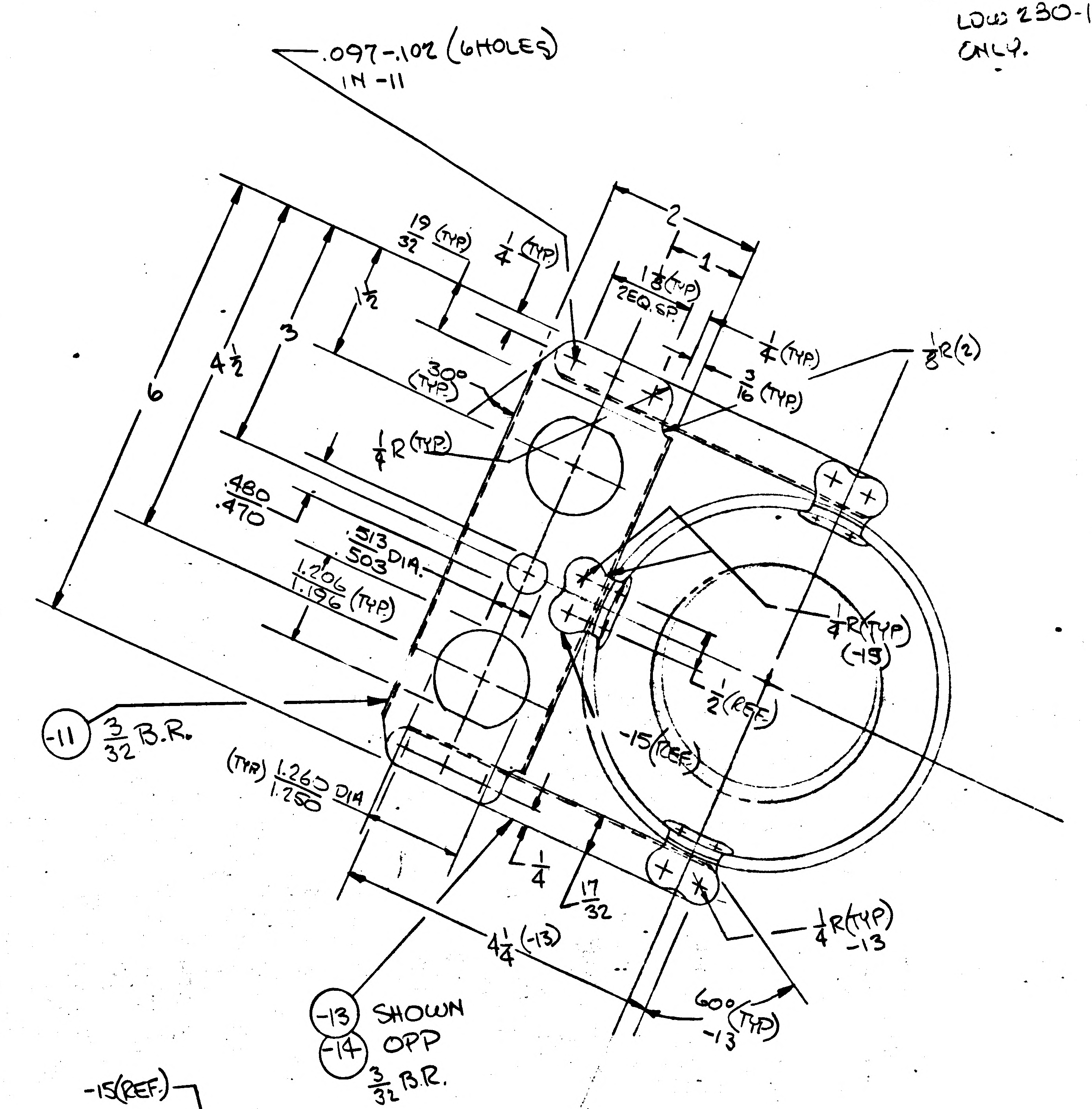
01

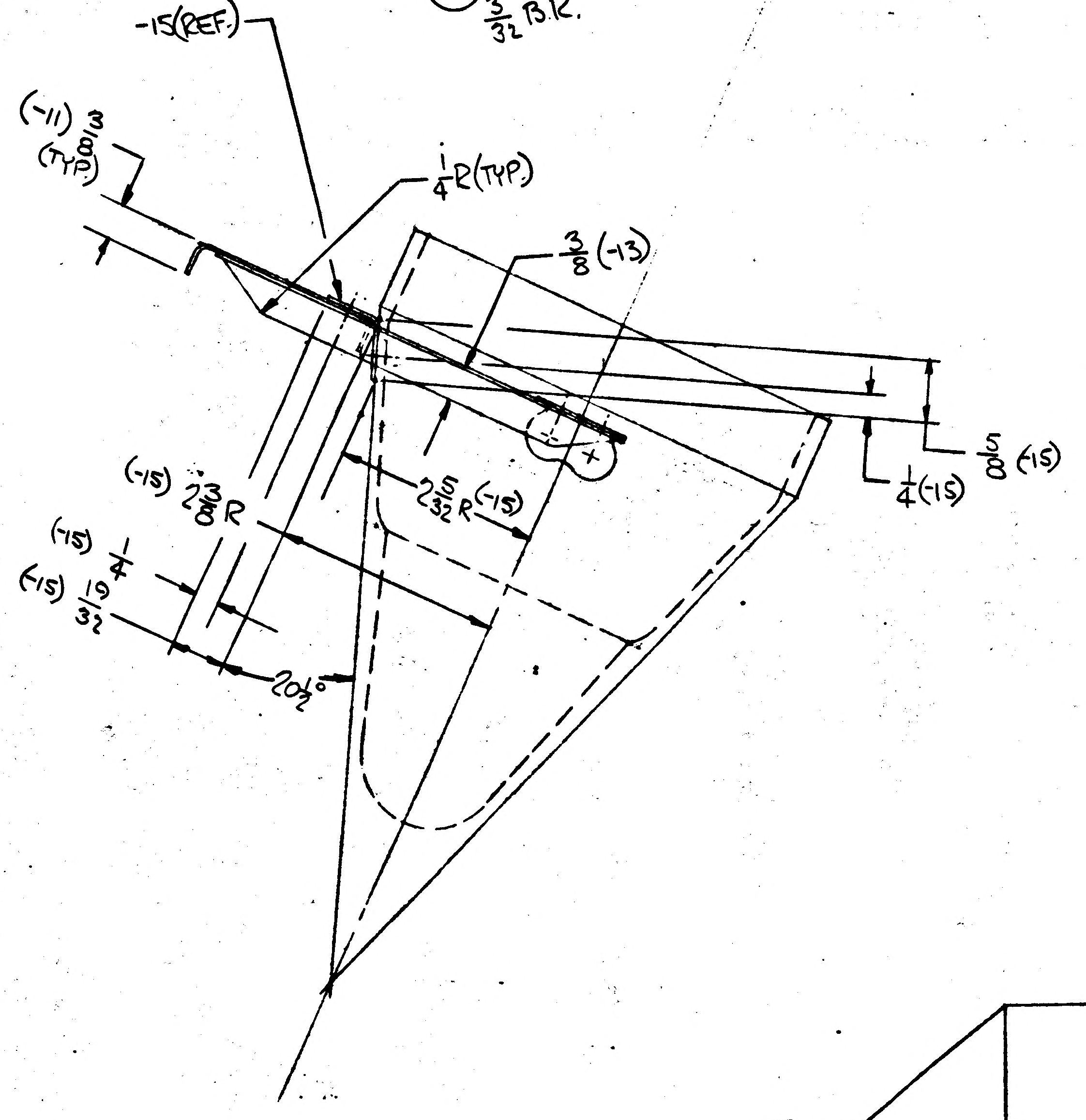
NAS 9-1100

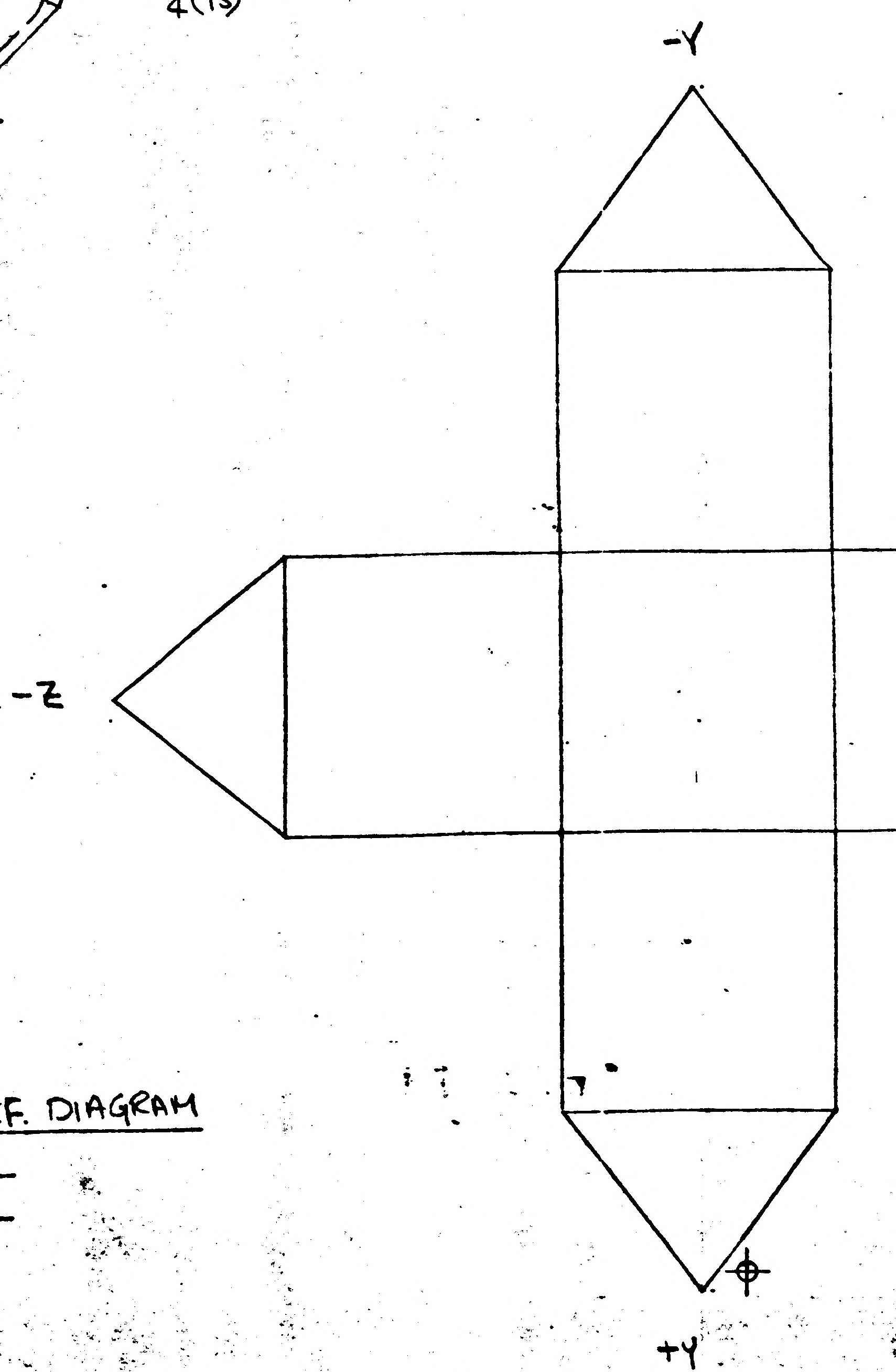
NOTES: 1- LAYOUT RELEASE - TO
PRODUCTION FORMAT.
2- ALL INFORMATION NO
LDW 230-18[illegible]-11 THRU -
ONLY.


℄ +Y 112.31
+Z 7.10
℄ +X116.014
+Y


¼R (TYP) (TRUE)
¾ (TRUE)
⅜ (TRUE)
⑮ 3/32 B.R.
(TYP) (TRUE) ¼
½ (TRUE) (TYP)
.097-.102 (4 HOLES) IN -15
℄ +X 185.71


.097-.102 (6 HOLES) IN -11
2
1
1⅛ (TYP) 2 EQ. SP.
19/32 (TYP)
¼ (TYP)
1½
3
4½
6
30° (TYP)
¼ (TYP)
3/16 (TYP)
⅛R (2)
¼R (TYP)
.480 .470
.513 .503 DIA.
1.206 1.196 (TYP)
¼R (TYP) (-15)
½ (REF.)
-15 (REF.)
(-11) 3/32 B.R.
(TYP) 1.260 1.250 DIA
¼
17/32
4¼ (-13)
¼R (TYP) -13
60° (TYP) -13
(-13) SHOWN
(-14) OPP
3/32 B.R.

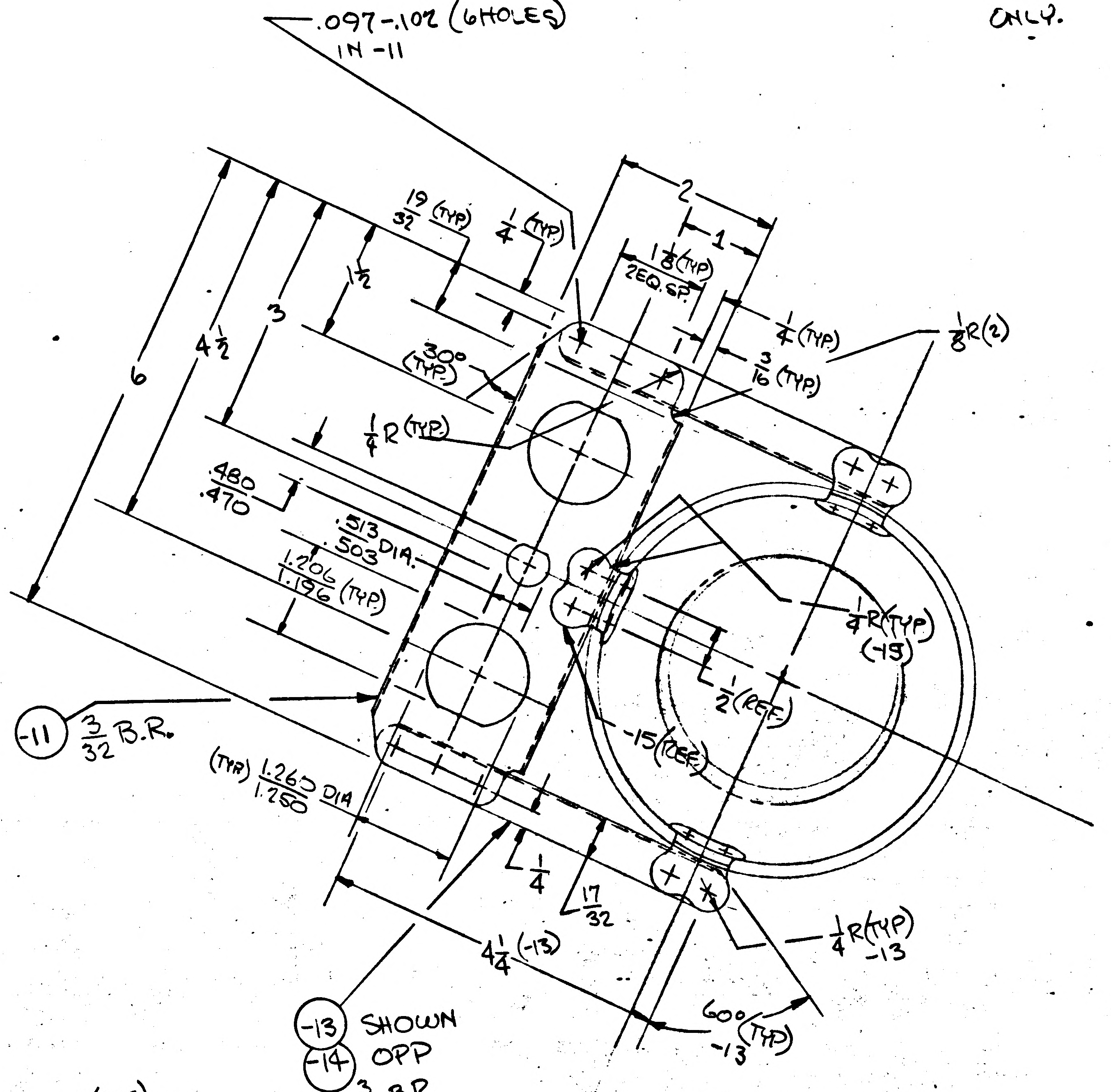

-15 (REF.)
(-11) ⅜ (TYP)
¼R (TYP)
⅜ (-13)
⅝ (-15)
¼ (-15)
(-15) 2⅜R
2 5/32 R (-15)
(-15) ¼
(-15) 19/32
20½°

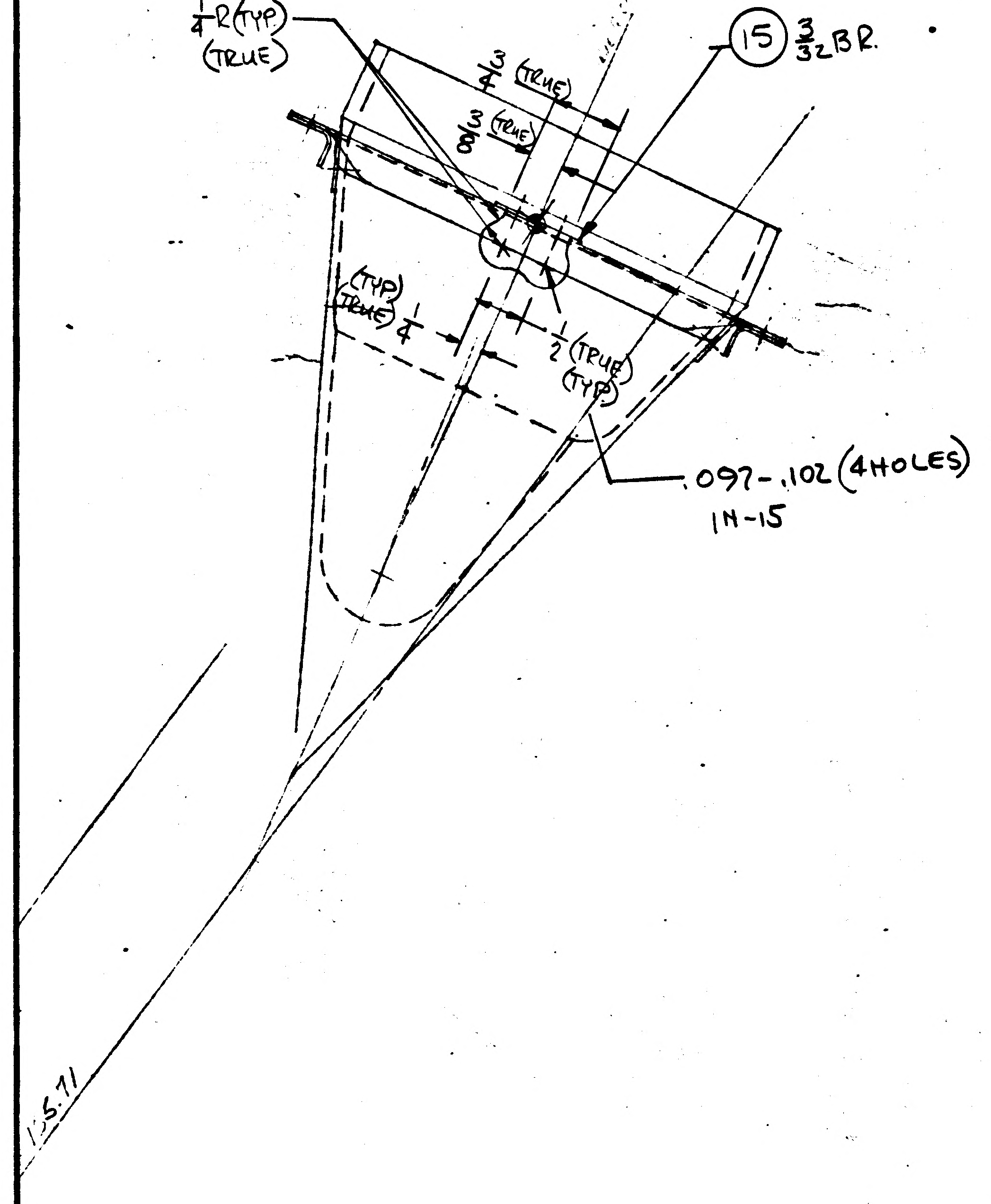


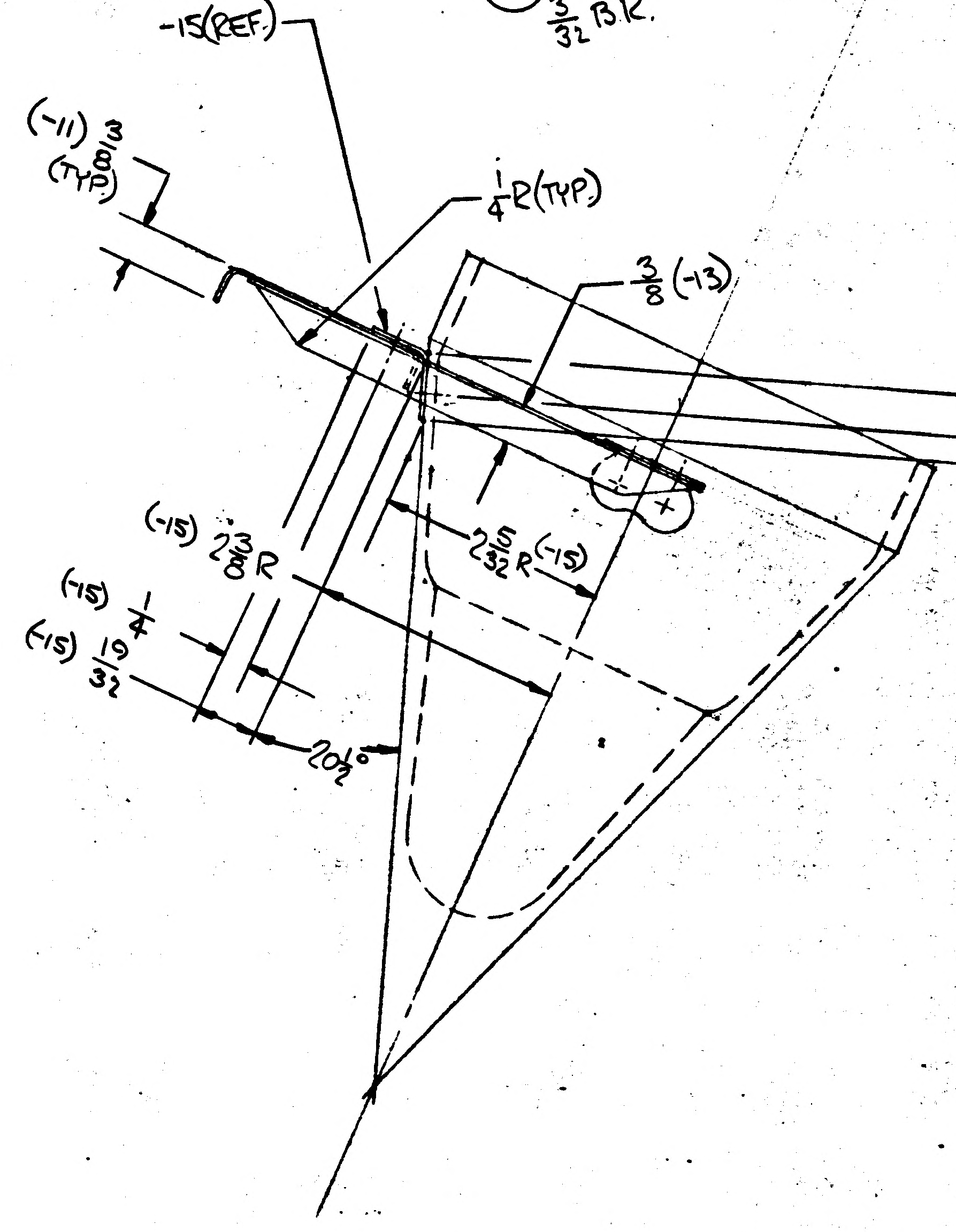
ENGINEERING REF. DIAGRAM
(NO SCALE)
(PLAN VIEW)

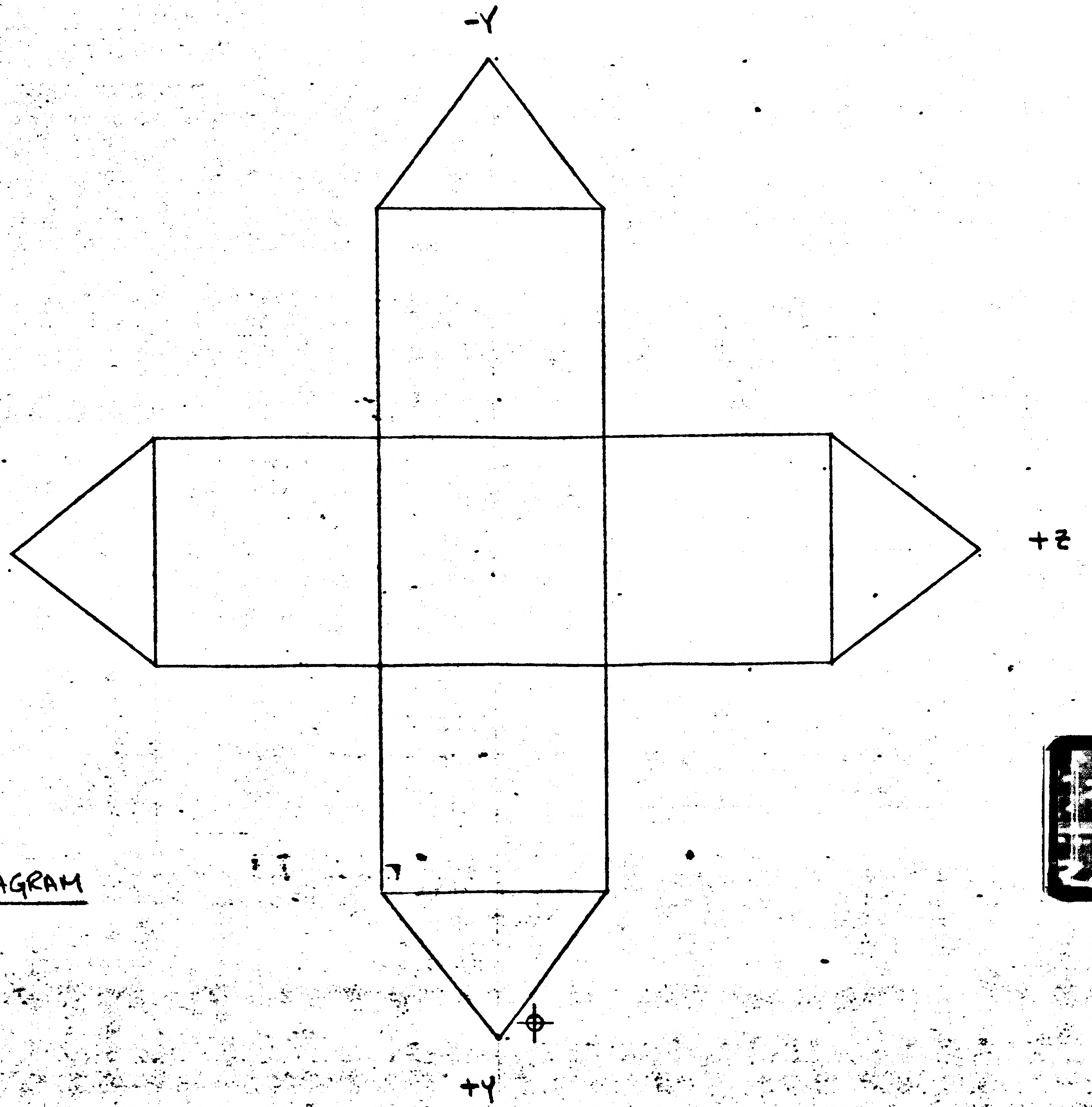
01/02 NAS 9-1100

NOTES: 1- LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.
2- ALL INFORMATION NOT REQ'D TO MANUFACTURE LDW 280-18120-11 THRU -15 IS REF INFORMATION ONLY.


.097-.102 (6 HOLES) 1N-11
2
1
1 1/2 (TYP) 2 EQ. SP.
19/32 (TYP)
1/4 (TYP)
1 1/2
3
4 1/2
6
30° (TYP)
1/4 (TYP)
3/16 (TYP)
1/8 R (2)
1/4 R (TYP)
.480/.470
.513/.503 DIA.
1.206/1.196 (TYP)
1/4 R (TYP) (-15)
1/2 (REF.)
-15 (REF.)
(-11) 3/32 B.R.
(TYP) 1.263/1.260 DIA
1/4
17/32
4 1/4 (-13)
1/4 R (TYP) -13
60° (TYP) -13
(-13) SHOWN
(-14) OPP
3/32 B.R.


1/4 R (TYP) (TRUE)
(15) 3/32 B.R.
3/8 (TRUE)
3/16 (TRUE)
(TYP) (TRUE) 1/4
1/2 (TRUE) (TYP)
.097-.102 (4 HOLES) 1N-15
1.5.71


-15 (REF.)
(-11) 3/8 (TYP)
1/4 R (TYP)
3/8 (-13)
5/8 (-15)
1/4 (-15)
(-15) 2 3/8 R
2 5/32 R (-15)
(-15) 1/4
(-15) 19/32
20 1/2°



ENGINEERING REF. DIAGRAM
(NO SCALE)
(PLAN VIEW)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	✓
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

I-3-20

02/02

NAS 9-1100

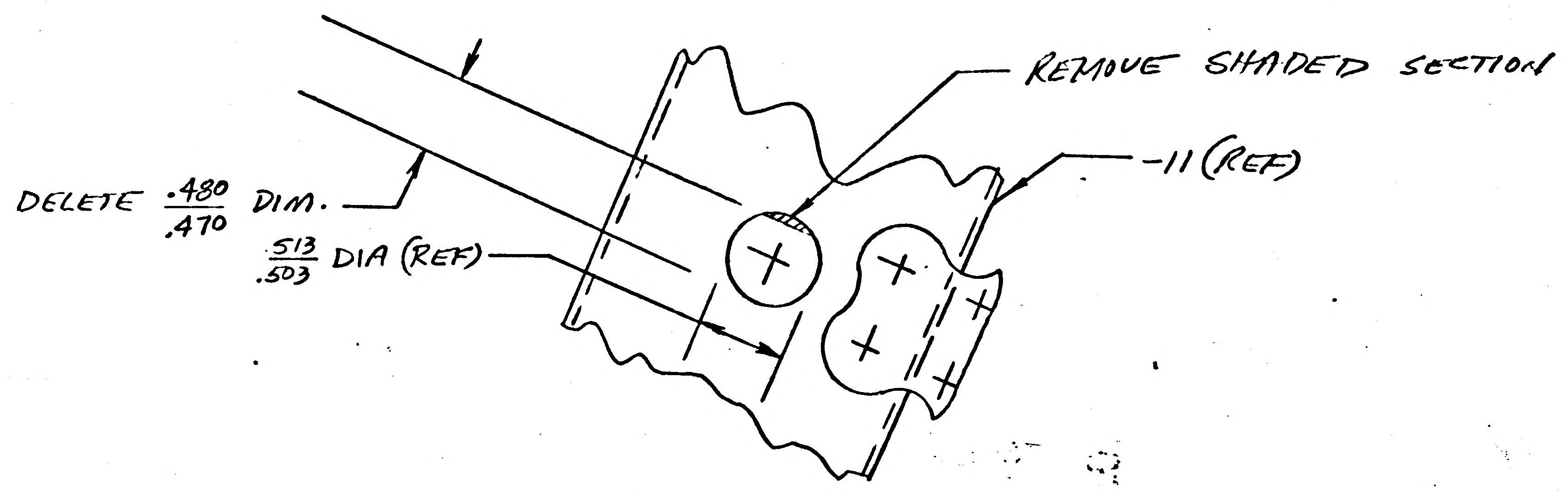
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW 280-1 20	
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

THIS IS AN ORIGINAL DWG

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18120
EO NO. A1
CONTROL INFO NO. L[illegible]-5-9731



REMOVE SHADED SECTION
-11 (REF)
DELETE $\frac{.480}{.470}$ DIM.
$\frac{.513}{.503}$ DIA (REF)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		5

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH ELECTRICAL CONNECTOR

DESCRIPTION OF EO: DELETED $\frac{.480}{.470}$ DIM FROM $\frac{.513}{.503}$ DIA HOLE

GAEC EO RELEASE: CE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTM-8 (18)	
		LM-1 (21) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ☑ SCRAP ☐

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
						JF	EWB	RMc	
DATE	1					11-1[illegible]-66	11/15/66	11-21-66	11-18-66

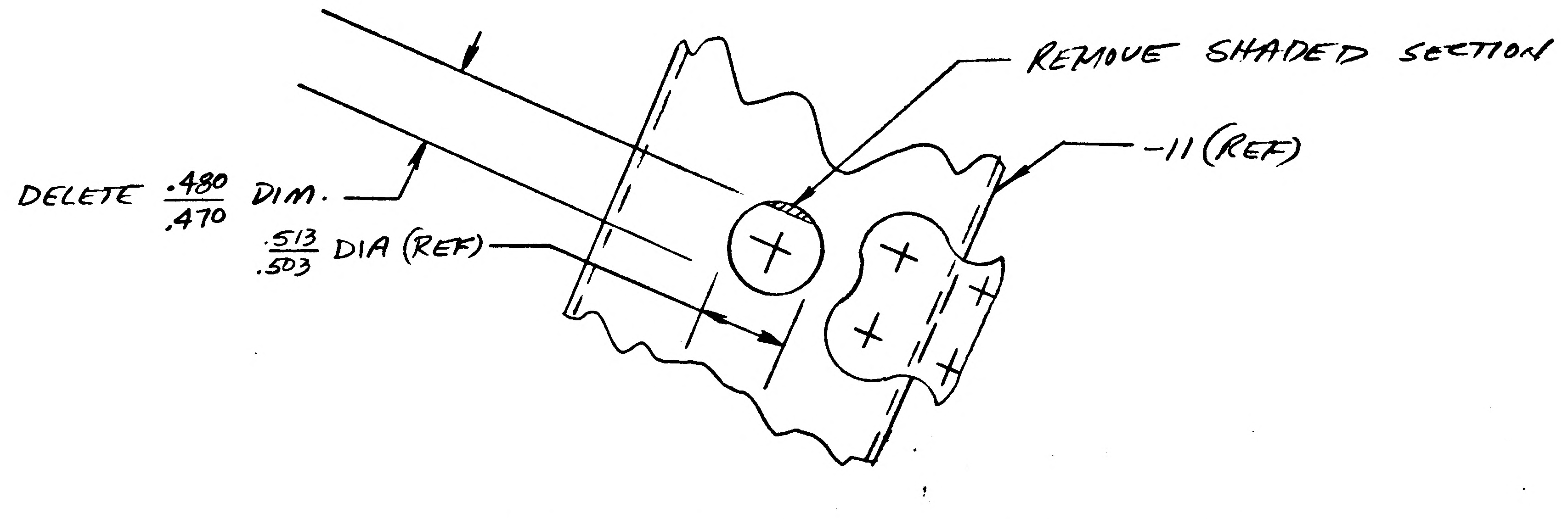
PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C5	CHANNEL DESCENT STAGE ~ R.H. UPPER	LDW280-18120	A1

ISSUED BY LIAISON EV BERGEMAN X-2485 SECTION VD1 GROUP NO. 280 PL 35

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18120		EO NO A2	
CONTROL INFO NO. LM-5-9731			



EO NUMBER WAS A1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO ELIMINATE INTERFERENCE WITH ELECTRICAL CONNECTOR	DELETED .480/.470 DIM FROM .573/.503 DIA HOLE	C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY							JFJ	EWB	RME	CJ
DATE							11-17-66	11/15/66	11-21-66	11-18-66
1			SUPPORT	RELIAB. GROUP	GROUP LEADER		STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C5	CHANNEL DESCENT STAGE ~ R.H. UPPER	LDW280-18120	A2

ISSUED BY LIAISON EV BERGEMANN X-2485 SECTION VD1 GROUP NO. 280 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 527
CONTROL INFO NO. LDW280A5939

FOR THE FOLLOWING DWGS & DASH NO'S REMOVE THE EFFECTIVITIES NOTED

DRAWING NO. *	DASH NO. **	TITLE	CHANGE NO.	EFF △
LDW280-18120 ✓	-11 -13 -14 -15	CHANNEL DESCENT STAGE ~ R.H. UPPER OUTRIGGER ~ LM/SLA UMBILICAL	A3	LM-1 THRU LM-15
LDW280-17743	-11 -13 -15	BRACKET DESCENT STAGE ~ +Y APEX ANTENNA SWITCH SUPPORT	A2	LM-1 THRU LM-6
LDW280-28555	-1 -3	BRACKET INSTL D/S +Y APEX ANTENNA SWITCH SUPPORT	B3	LM-1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 19-1220

5

REASON FOR EO: RELOCATION OF LM/SLA ANTENNA SWITCH & UMBILICAL CONN LCD 19-1220

DESCRIPTION OF EO: FOR * & ** REMOVED △ EFF

Ⓡ GAEC EO RELEASE C
JS 3-28-7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY							Dam	
DATE	3/23/67			3/18/67	3/23/67		3/27/67	3/28/67
5	VDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 527

ISSUED BY G. BARNES/J. STRAKOSCH X1392 SECTION XDI GROUP NO. 335 PL 35

01
NAS 9-1100

LDW280-18121 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28688	LTA-8(18)	68EA
LM	LDW280-28687	LTA-8(18)	80EA
PART NO. LDW280-18121-11 & 13		GAEC SCH NO. 50-3	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A		
LAST DASH NO. USED	-13	PRIM NO. 207	18(001) MP-14	A-1-16-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 | LINE ITEM # 1 | DOCUMENTATION TYPE II

DRAWN BY	T. FREDA 21 DEC 66	RELIABILITY	
LAYOUT BY	R VAN COTT		
CHECKED BY	EG 1-6-66		
~~GRP. LEADER~~			
VEH. DES. INT.	J. Strohm C. 1/11/67		
STRUCTURES	WJH 1/11/67	PROJ ENGR	R. McCarley 1-12-67
STRUCTURES	1/12	REL GROUP	1-14-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ REMOVEABLE BASE HEAT SHIELD
THERMAL CONTROL SKINS

SIZE	CODE IDENT NO.		
B	26512	LDW280-18121	A
SCALE NONE		SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.00, 1.10, 2.00, 3.00						EO A1	EO A1 INITIAL DRAWING RELEASE PARTS MADE PER EO.	LTA-8(18)	NOT	REQD	T. FREDA 21 DEC 66		
	2	1.00, 1.10						EO A2	IN MODEL BLOCK FOR -11 & -13, ON NEXT ASSEMBLY LDW280-28688 ONLY, (68) EA PER MODULE WAS 48 EA PER MODULE.						

CHG APPROVED LTR	~~GROUP LDR~~	VEH. DES. INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18121	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18121-13	E		ANGLE			MAKE FROM	LDW280-18121-11			
	LDW280-18121-11	E		ANGLE	HR&CRES SH	MIL-S-6721	TYPE 321 ANL	.025 x 1 X 2	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18121	A
SCALE NONE			SHEET 2.00

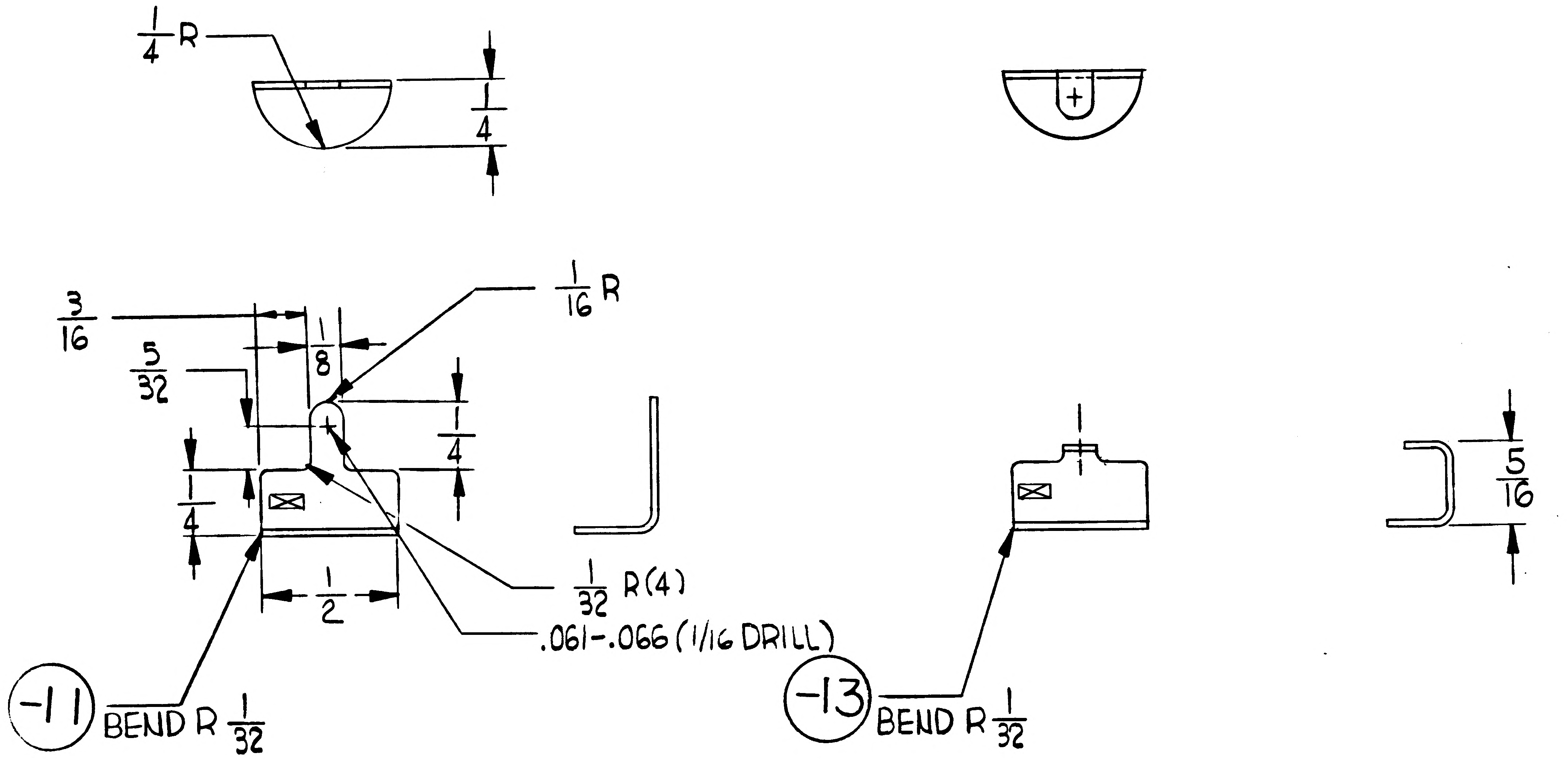
ENG 77.2 5-64

01

NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√



$\frac{1}{4}$ R
$\frac{1}{4}$
$\frac{3}{16}$
$\frac{5}{32}$
$\frac{1}{8}$
$\frac{1}{16}$ R
$\frac{1}{4}$
$\frac{1}{4}$
$\frac{1}{32}$ R(4)
$\frac{1}{2}$
.061-.066 (1/16 DRILL)
(-11) BEND R $\frac{1}{32}$
(-13) BEND R $\frac{1}{32}$
$\frac{5}{16}$

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18121	A
SCALE 2X		SHEET 3.00	

ENG 73.1 6-64

01

NAS 9-1100

ENG 32.2 REV 3-65

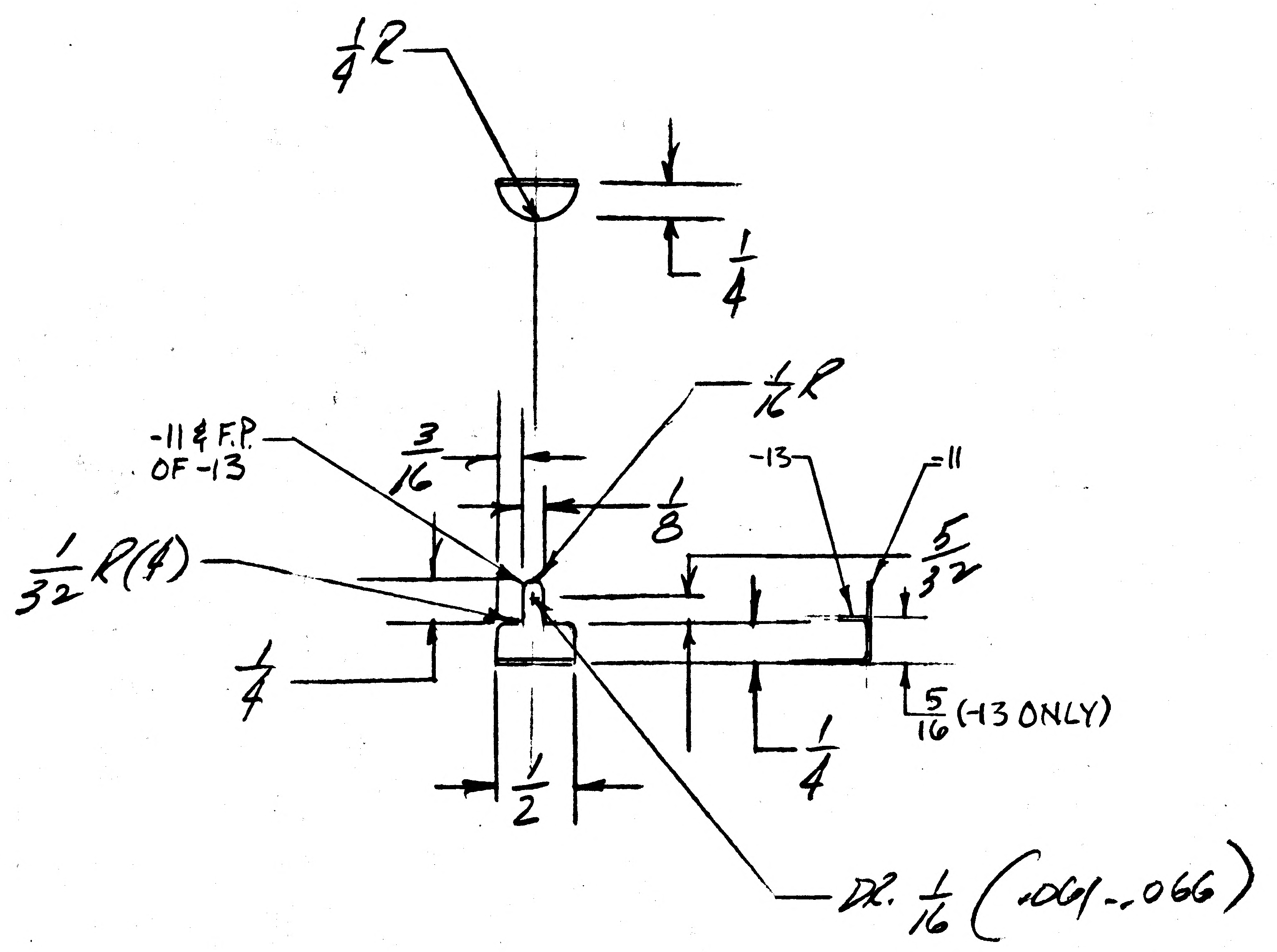
*

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18121 EO NO. A1
CONTROL INFO NO. LDW280A1088



$\frac{1}{4}$R
$\frac{1}{4}$
$\frac{1}{16}$R
-11 & F.P. OF -13
$\frac{3}{16}$
$\frac{1}{8}$
-13
-11
$\frac{5}{32}$
$\frac{1}{32}$R(4)
$\frac{1}{4}$
$\frac{5}{16}$(-13 ONLY)
$\frac{1}{4}$
$\frac{1}{2}$
DR. $\frac{1}{16}$ (.061-.066)

LDW280-18121-11 & -13 (1/32 B.R.)

MAKE FROM .025 COMP 321 ANNEALED CORROSION RESISTANT STEEL SHEET MIL-S-6721

DWG TOL:
FRACT ± $\frac{1}{32}$
DECIMAL ±.020
ANGULAR ± $\frac{1}{2}$°

		NA	NO REQD/VEH.
-11 & -13	LDW280-28687	—	80 EA
-11 & -13	↓ -28688	—	48 EA

* DWG NOT MADE

✓

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: PROVISIONS FOR HEATER SKIN SPTS

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE - PARTS MADE PER EO

GAEC EO RELEASE: VE 10/19

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG *; RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP: NOT REQ'D.

APPROVED BY	JHS		AB FERRITT		NM		RMC (WR)	
DATE ✓	10/18/66		10/19 THERMO		10-19-66		10-19-66	10/19/66
	V.D.I.	SUPPORT		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: ANGLE REMOVABLE BASE HEAT SHIELD THERMAL CONTROL SKINS DESCENT STAGE

DRAWING NO.: LDW280-18121

EO NO.: A1

CDR 10/28/66

ISSUED BY R. VAN COTT X1153 SECTION VDI GROUP NO 335 PL 35

01

NAS 9-1100

LDW280-18122 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25787	LTA-5(15)	3
PART NO. LDW280-18122-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25607	LTA-5(15)	1 EA
PART NO. LDW280-18122-11, -13		GAEC SCH NO. 502	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00		3.00			
REV	A	A		A		A			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-15	PRIM NO. 207	LE001 MP-14	A10-24-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100 | LINE ITEM 1 | DOCUMENTATION TYPE II

DRAWN BY	E. SULSENTI	RELIABILITY	
LAYOUT BY	G. BARNES		
CHECKED BY	LL 9-26-66		
~~GR LEADER~~	—		
STRUCT	10/21/66		
STRUCT	10/21	PROJ ENGR	10-22
VEH DES INT	10/19	REL GROUP	J Tagliava 10/29/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT·STAGE·ELECT. LINES·SUPPORT·FWD UPPER DECK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18122	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00						EOA1 Ⓡ	EOA1 INITIAL DRAWING RELEASE PARTS MADE PER EO	LTA-5(15)	NOT	REQD	SULSENT 9-22-66		10/20/66

CHG APPROVED	LTR	GROUP LDR	STRUCT	STRUCT	VEH DES INT	WEIGHTS	RELIABILITY				
	A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18122	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY								CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
									LDW280-18122-15	E	ANGLE	AL ALLOY SH	QQ-A-250/4	2024 T3	.032 x 3 x 3	NONE	88	
									LDW280-18122-13	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024 T3	.050 x 5 x 5	NONE	88	
									LDW280-18122-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024 T3	.050 x 5 x 7	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18122
A

SCALE NONE
SHEET 200

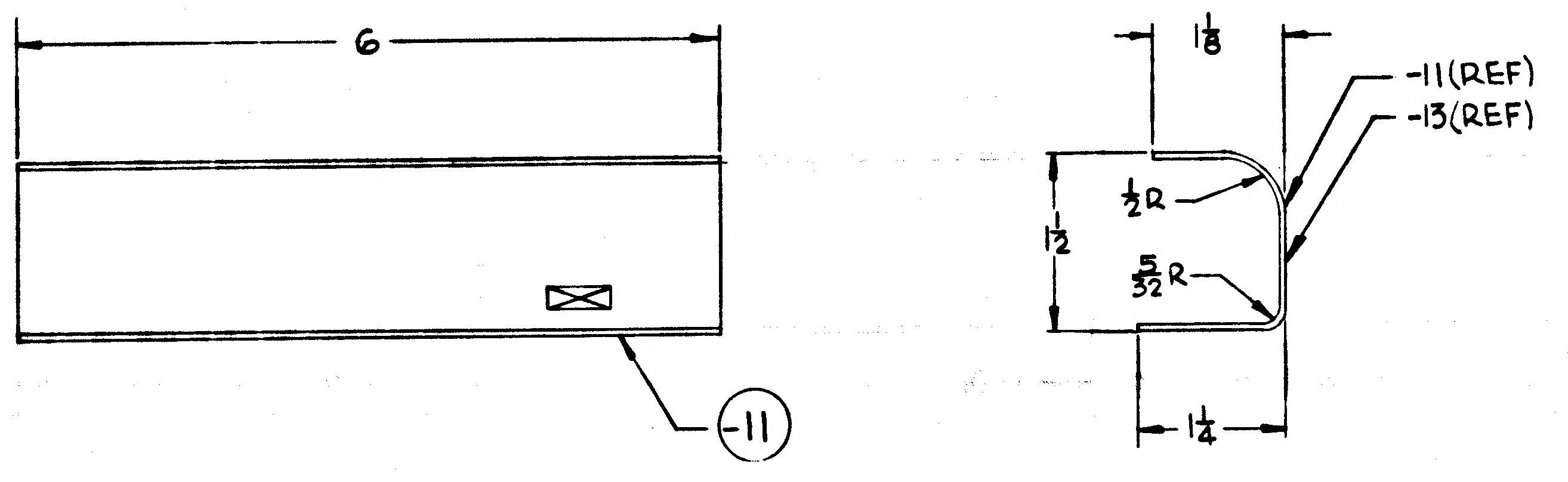
ENG 77.2 7-65

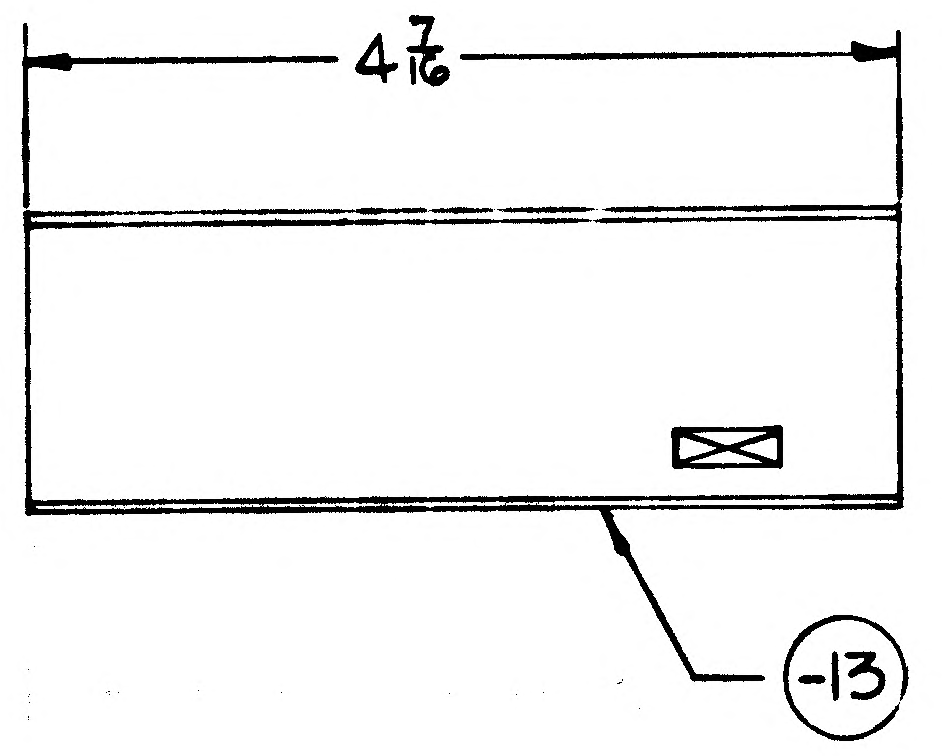
01

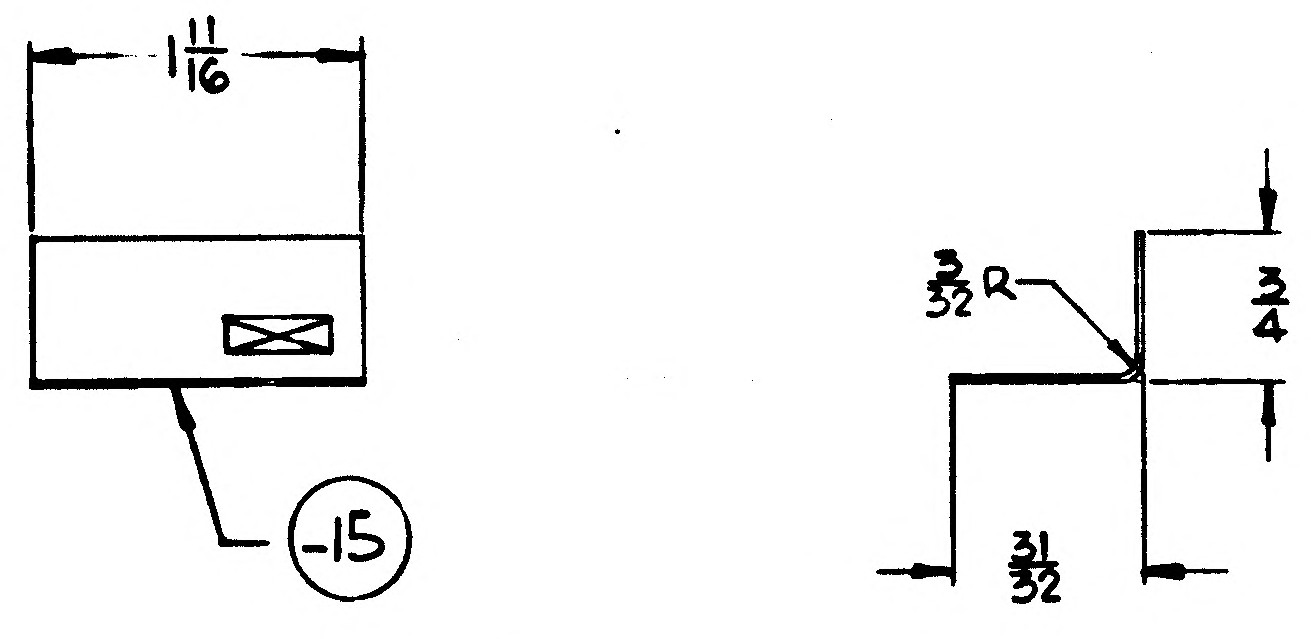
NAS 9-1100

LDW280-18122A

NOTES:
1. NO TOOLING HOLES PERMITED IN PARTS.







MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I. NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18122	A
	SCALE FULL			SHEET 300

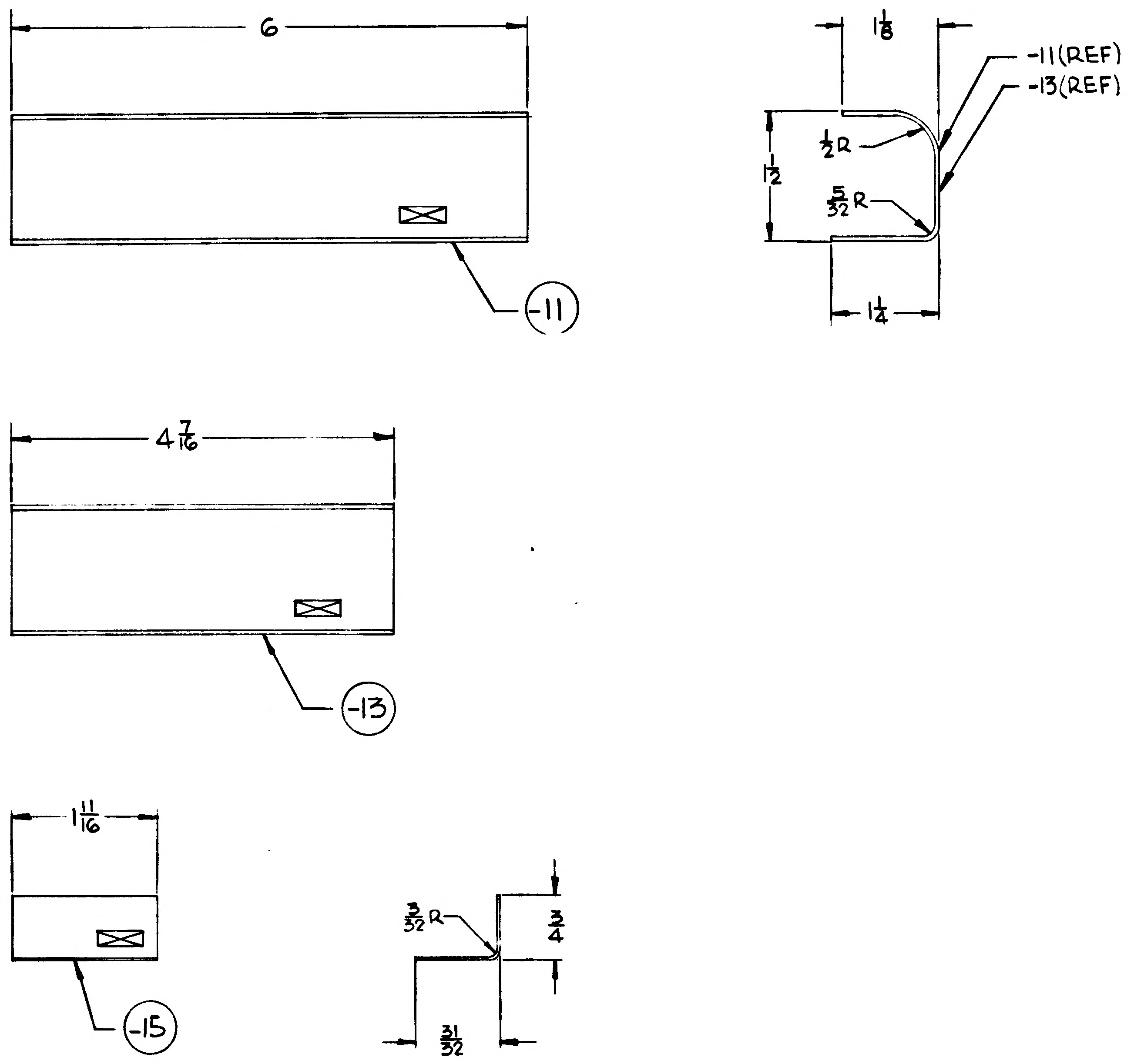
LDW280-18122A

01

NAS 9-1100

LDW280-18122A

NOTES:
1. NO TOOLING HOLES PERMITED IN PARTS.



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-18122A

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18122	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

01 NAS 9-1100

LDW280-18123

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28813	LTA-8(15)	24
PART NO. LDW280-18123 -11		GAEC SCH NO. 523	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED
LAST DASH NO. USED -11
GRUMMAN REL^c INFO
PRIM NO. LE(001)
207 MP-9-6-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.030 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II
DRAWN BY J. Backofen 9/1/66
LAYOUT BY J. Backofen 9/1/66
CHECKED BY
GR LEADER 9/9/66
VEH DES I 9/1
STRUCT. W/H EB 9/2
STRUCT. 9/2
WEIGHTS 9-12
RELIABILITY
THERMO 10/1/66
PROJ ENGR R.M. Carbee 9-3
REL GROUP 10/3/66

②
GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP~DESCENT STAGE~
HEATER SKIN SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18123
SCALE NONE
SHEET 1 OF 3

ENG 77.1 12-65

CDR = 9/7/66

01

NAS 9-1100

C.L.	QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C								LDW280-18123-11	E	CLIP	AL.AL. SHEET	QQ-A-250/4	2024-T3	.050 x 1 x 1¾	NONE	NONE	
▨																	

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18123

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

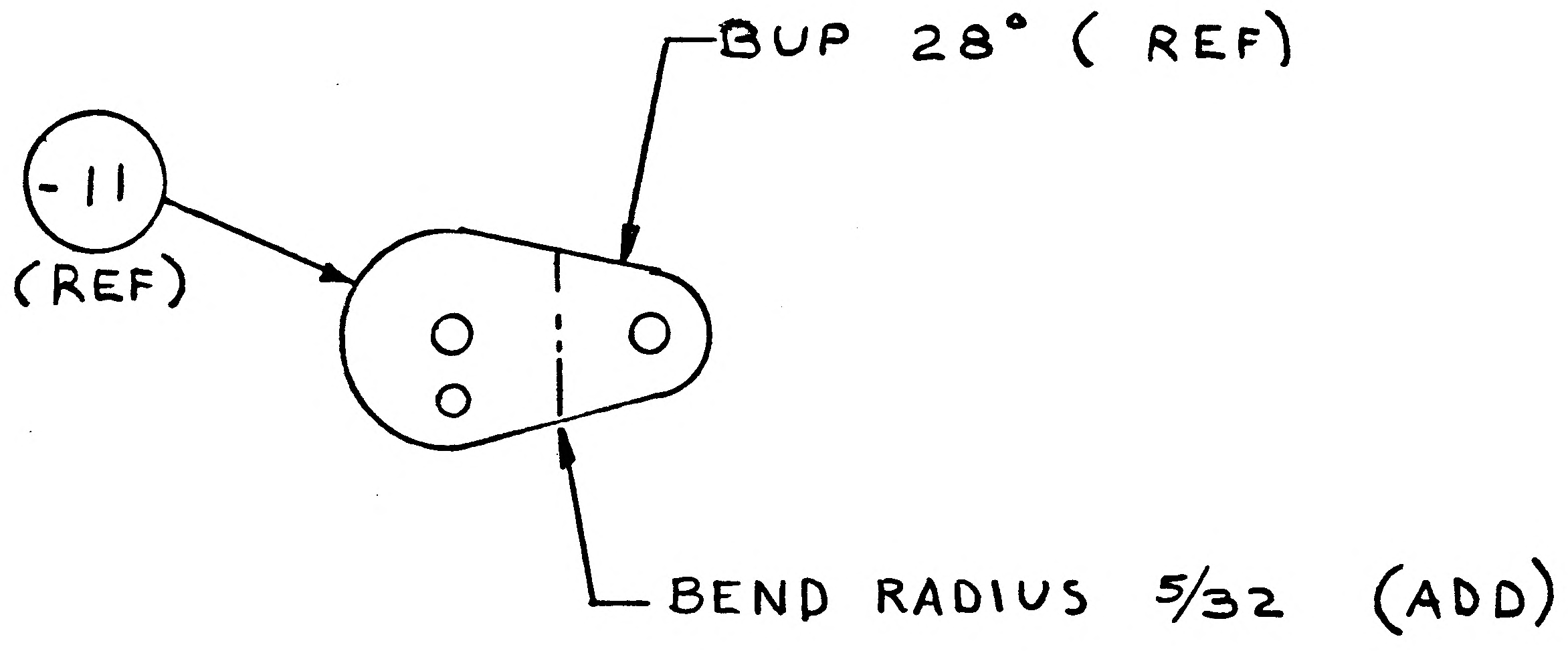
*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG NO. LDW280-18123
EO NO. A1
CONTROL INFO NO LDW280A-0391

IN F/D ADD BEND RADIUS AS SHOWN



2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: DWG. CORRECTION

DESCRIPTION OF EO: ON -11 ADDED 5/32 BEND RADIUS

GAEC EO RELEASE: FR 9/29/6

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
L M		NOT REQD	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY		SAR			MJD		RMC(E)	
✓		NOT	REQ'D	DATE	9/14/66	103	—	—	9/15/66	—	9-29	9/23/66
REVISE DWG	RECORD EO	REWORK	SCRAP	9/14/66	VDI	SUPPORT VB	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: E

DRAWING TITLE: CLIP DESCENT STAGE HEATER SKIN SUPPORT

DRAWING NO. LDW280-18123

EO NO. A1

ISSUED BY J. BACKOFEN

SECTION VEH. DES. INT.

GROUP NO. 335

PL 35

01

NAS 9-1100

C (A)

ENG 32.1 REV 3-65

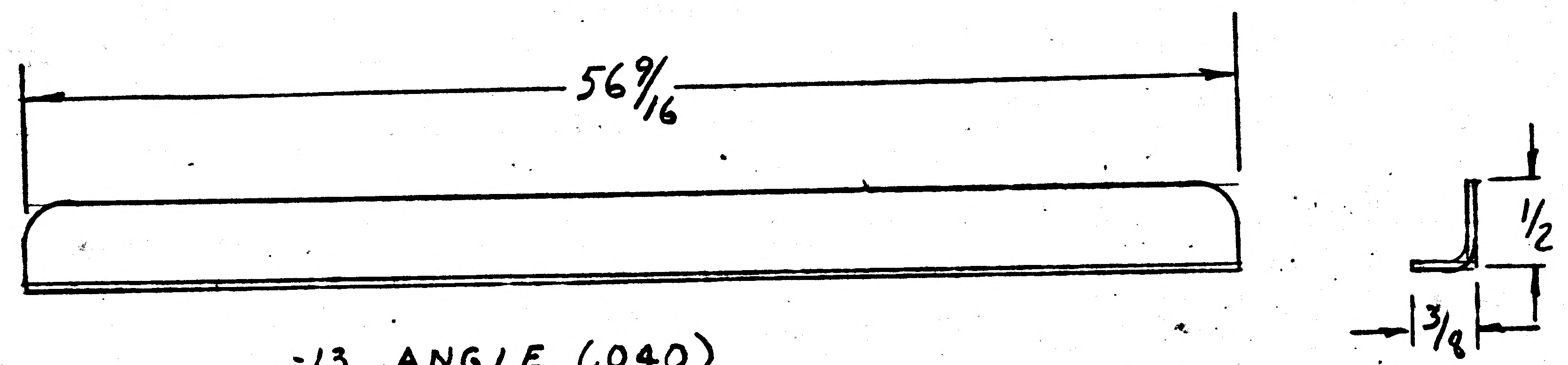
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18123
EO NO. A2
CONTROL INFO NO. LM5-13245

RELEASED BY LIAISON

IN MOD BLK FOR -11
REMOVE LTA-8 (18) EFF.

ADD -13 AS SHN:



-13 ANGLE (.040)
MAKE FROM 2024-T3 AL. ALY SH. BR 1/8 FIN 76
N/A - LDW 280-28815, 2 REQ/MOD, LTA8(18). I&T=E QQA-250/4.

5

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: PART WAS REMOVED ON INSTL DWG (LDW280-28813) & SUPT BLAST DEFLECT. HEATER SKIN.

DESCRIPTION OF EO: IN MOD BLK FOR -11 REMOVED LTA8(18) EFF. IN F/D B/M & MOD BLK ADDED -13

GAEC EO RELEASE: C
JK
~

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA 8 (18)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓			-11

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	WT			~		CH	DAM	
DATE	4/21/67			~	4/24/67	4/24/67	4-26-67	4/24/67
1	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S - HEATER SKINS SUPT	LDW280-18123	A2

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

LDW280-18124 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25607	LTA-5(15)	1 EA
PART NO. LDW280-18124 -19, -21		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25587	LTA-5(15)	1 EA
PART NO. LDW280-18124 -11, -13, -15, -17		GAEC SCH NO. 501	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -21

GRUMMAN REL INFO A

PRIM NO. 215 | E(001) | MP-14 | A-11-21-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	T.FREDA 27 SEPT 66	RELIABILITY	
LAYOUT BY	E.NEFF		
CHECKED BY	R.SMITH 9.28.66		
~~GRP. LEADER~~			
VEH DES. INT.	11/15/66		
STRUCTURES	EB 11/16	PROJ ENGR	R.M. Carley 11-16-66
STRUCTURES		REL GROUP	11/19/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ UPPER DECK
He PRESSURIZATION SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18124 | A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	[illegible] APPD
											REWORK	SCRAP			
A	1	1.00,1.10, 2.00,3.00						EO A1	EO A1 INITIAL DRAWING RELEASE PARTS MADE PER EO	LTA-5(15)	NOT	REQD	RMS T.FREDA 26 SEPT66	RMC 11-16-66	11/19/66
	2	1.10,2.00, 3.00						EO A2	IN FIELD & B/M: ADDED -17, -19, -21						
	3	1.10,3.00							REF EO A1: ON -15, 2 1/2 DIM WAS INCORRECTLY 1 3/4.						

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18124	A
SCALE NONE		SHEET 1.10	

ENG 77.3 5-66

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18124 -21	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 3 3/4 x 4 1/4	NONE	88	
		-19		CHANNEL	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 4 1/4 x 4 3/4			
		-17		BRACKET	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 2 1/2 x 3 7/8			
		-15		ANGLE	AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE# 22220 x 4 3/8			
		-13		ANGLE	AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE# 22220 x 4 3/8			
		LDW280-18124 -11	E	ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 1 3/4 x 4 3/8	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

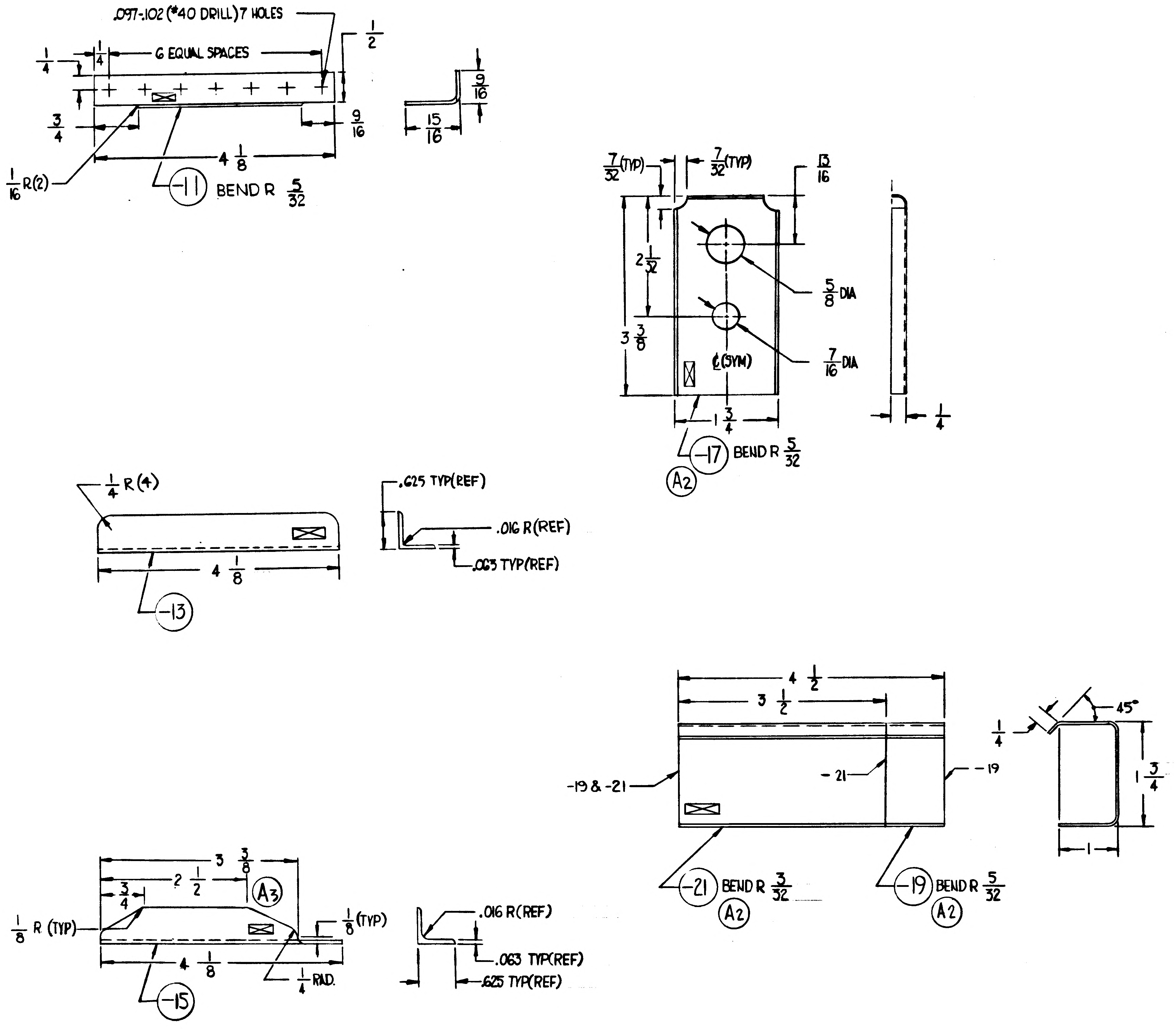
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18124	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


.097-.102 (#40 DRILL) 7 HOLES
6 EQUAL SPACES
1/4
1/4
1/2
3/4
9/16
4 1/8
1/16 R(2)
-11
BEND R 5/32
9/16
15/16
7/32 (TYP)
7/32 (TYP)
13/16
2 1/32
3 3/8
5/8 DIA
7/16 DIA
℄ (SYM)
1 3/4
1/4
-17
BEND R 5/32
A2
1/4 R (4)
4 1/8
-13
.625 TYP (REF)
.016 R (REF)
.063 TYP (REF)
4 1/2
3 1/2
-19 & -21
- 21
- 19
1/4
45°
1 3/4
1
-21
BEND R 3/32
A2
-19
BEND R 5/32
A2
3 3/8
2 1/2
3/4
A3
1/8 R (TYP)
1/8 (TYP)
4 1/8
1/4 RAD.
-15
.016 R (REF)
.063 TYP (REF)
.625 TYP (REF)

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
$\sqrt{125}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\sqrt{200}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18124	A
MODEL OR END ITEM	SCALE F		SHEET 3.00	

01 NAS 9-1100

LDW280-18125 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28746	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
		LM-3(33)	1 EA
		LM-2(32)	1 EA
		LM-1(31)	1 EA
LM	LDW230-28746	LTA-8(18)	1 EA
PART NO. LDW280-18125-15-17 & -18		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28771	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
		LM-3(33)	1 EA
		LM-2(32)	1 EA
LM	LDW280-28771	LM-1(31)	1 EA
PART NO. LDW280-18125-11 & -13		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28803	LM-15(45)	2 EA
		LM-14(44)	2 EA
		LM-13(43)	2 EA
		LM-12(42)	2 EA
		LM-11(41)	2 EA
		LM-10(40)	2 EA
		LM-9(39)	2 EA
		LM-8(38)	2 EA
		LM-7(37)	2 EA
		LM-6(36)	2 EA
		LM-5(35)	2 EA
		LM-4(34)	2 EA
		LM-3(33)	2 EA
		LM-2(32)	2 EA
LM	LDW280-28803	LM-1(31)	2 EA
PART NO. LDW280-18125-11 & -13		GAEC SCH NO. 52	

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	1.10	2.00	3.00				
REV	A	A	A	A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A		
		PRIM NO.	JK(001)	
LAST DASH NO. USED	-21	207	MP-14A-6/26/7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	MAJUK	9/15/66	THERMO	M. SOLON	9/19/66
LAYOUT BY	MAJUK	9/15/66			
CHECKED BY		9/16/66			
GR. LEADER	J. STRAKOSCH	9/19			
VEH DES INT	W. BISCHOFF	9/19			
STRUCTURE	W.J.H. FEB.	9/19	PROJ ENGR	R.M. CARBEE	9/19
STRUCTURE	HILDERMAN	9/19	REL GROUP	J. TAGLIAVIA	10/17/66
WEIGHTS	D. ROBESCH	9/21			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE-QUAD III-AMBIENT HE-ACESS.
PLUME IMPINGEMENT SHIELD

SIZE B | CODE IDENT NO. 26512 | LDW280-18125 | A
SCALE NONE | SHEET 1.00 OF 5

A

ENG 77.1 12-65

THIS DWG SUPERSEDES LDW280-18125 "NO CHANGE" 10/17/66

01 NAS 9-1100

LDW280-18125 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28737	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	1
		LM-2(32)	1
LM	LDW280-28737	LM-1(31)	1
PART NO. LDW280-18125-17		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52743	LM-15(45)	8 EA
		LM-14(44)	8 EA
		LM-13(43)	8 EA
		LM-12(42)	8 EA
		LM-11(41)	8 EA
		LM-10(40)	8 EA
		LM-9(39)	8 EA
		LM-8(38)	8 EA
		LM-7(37)	8 EA
		LM-6(36)	8 EA
		LM-5(35)	8 EA
		LM-4(34)	8 EA
		LM-3(33)	8 EA
	LDW280-52743	LM-2(32)	8 EA
	LDW280-51743	LM-1(31)	7 EA
LM	LDW280-28743	LTA-8(18)	1 EA
PART NO. LDW280-18125-19f-21		GAEC SCH NO. 52	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET									
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL INFO

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO.

LINE ITEM

DOCUMENTATION TYPE

DRAWN BY

LAYOUT BY

CHECKED BY

PROJ ENGR

REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18125	A
SCALE NONE		SHEET 1.01 OF	

Ⓐ

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS
FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE, LAST REV. NO CHANGE. ADDED SH. 1.10 & 1.01 H.DEUTSCH 2-28-67						
A	1	1.10,3.00						EO A1	ON-15 RELOCATED ARROW HEADS FOR 2 5/32.	NOT REQ'D	NOT	REQ'D	H. DEUTSCH 3-20-67		
	2	1.10,3.00						EO A2	ON-21 5/32 BR (WAS 1/16.).	LTA-8(18), LM-1(31) THRU LM-6(36)	✓				
	3	1.00,1.01 1.10						LEO280-320	FOR LDW280-18125-11,-13,-15,-17,-18,-19 & -21 ADDED LM-7 THRU LM-15 EFF.	LM-7 THRU LM-15	NOT	REQ'D			
	4	1.00,1.10 1.01						EO A4	REVISED N/A OF-17 TO INCLUDE LDW280-28737; 1 REQ'D/MOD; EFF: LM-1(31) THRU LM-15(45).	LM-1 THRU LM-15	NOT	REQ'D			
	5	1.00,1.01						EO A5	ON-19 & -21 REMOVE N/A LDW280-28744, LTA-8 (18) & LM-1 (31) THRU LM-15(45). ADDED TO -19 & -21 N/A LDW280-51743 LM-1(31) (1 EA REQ'D) & N/A LDW280-52743 LM-2(32)(1 EA REQ'D)	LM-1 THRU LM-15		✓			
	6	1.00,1.01						EO A6	REF EO A5: ON-19 & -21 ADDED LM-3(33) THRU LM-15 (45) TO N/A LDW280-52743. ADDED N/A LDW280-28743, LTA-8 (18) (1 EA REQ'D/MOD).	LTA-8 LM-3 THRU LM-15	NOT	REQ'D			
	7	1.00,1.01						EO A7	FOR -19 & -21 IN MOD/BLK REVISED QTY. REQD. FOR NEXT ASSY LDW280-51743, 7 REQD WAS 1. FOR NEXT ASSY LDW280-52743, 8 REQD. WAS 1.	LM-1 (31) THRU LM-15(45)	NOT	REQ'D			
	8	1.00,1.10						EO A8	ON-11 & -13, QTY REQ'D PER N/A LDW280-28771, 1EA WAS 2EA	LM-1 (31) THRU LM-15 (45	NOT	REQD			
	9	1.10,3.00							ADDED "PER ASTM-B162" TO NOTE #1, ADDED NOTE #2		NOT	ReQD	S.J.		
	10								ⓒ IN B/M, -15 WAS: MAKE FROM LDW280-17950-14						

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	THERMO	PROJ
A		6/19/67	6/20/67				6/22

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18125	A
SCALE NONE			SHEET 1.10

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ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18125-21	E		COLLAR	SEE NOTES 1 & 2			.00125 X 5 X 12	NONE	NONE	
	-19			STRAP				.00125 X 3 X 11			
	-18			ZEE				.0005 X 2 X 4			
	-17			ZEE	SEE NOTES 1 & 2			.0005 X 2 X 4			
	-15			ZEE	SEE NOTES 1 & 2			.0005 × 12 × 40			
	-13			ANGLE	SEE NOTES 1 & 2			.0005 X 1 1/4 X 2			
	LDW280-18125-11	E		ZEE	SEE NOTES 1 & 2			.0005 X 2 1/2 X 2 1/2	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18125	A
SCALE NONE		SHEET 2.00	

(A)

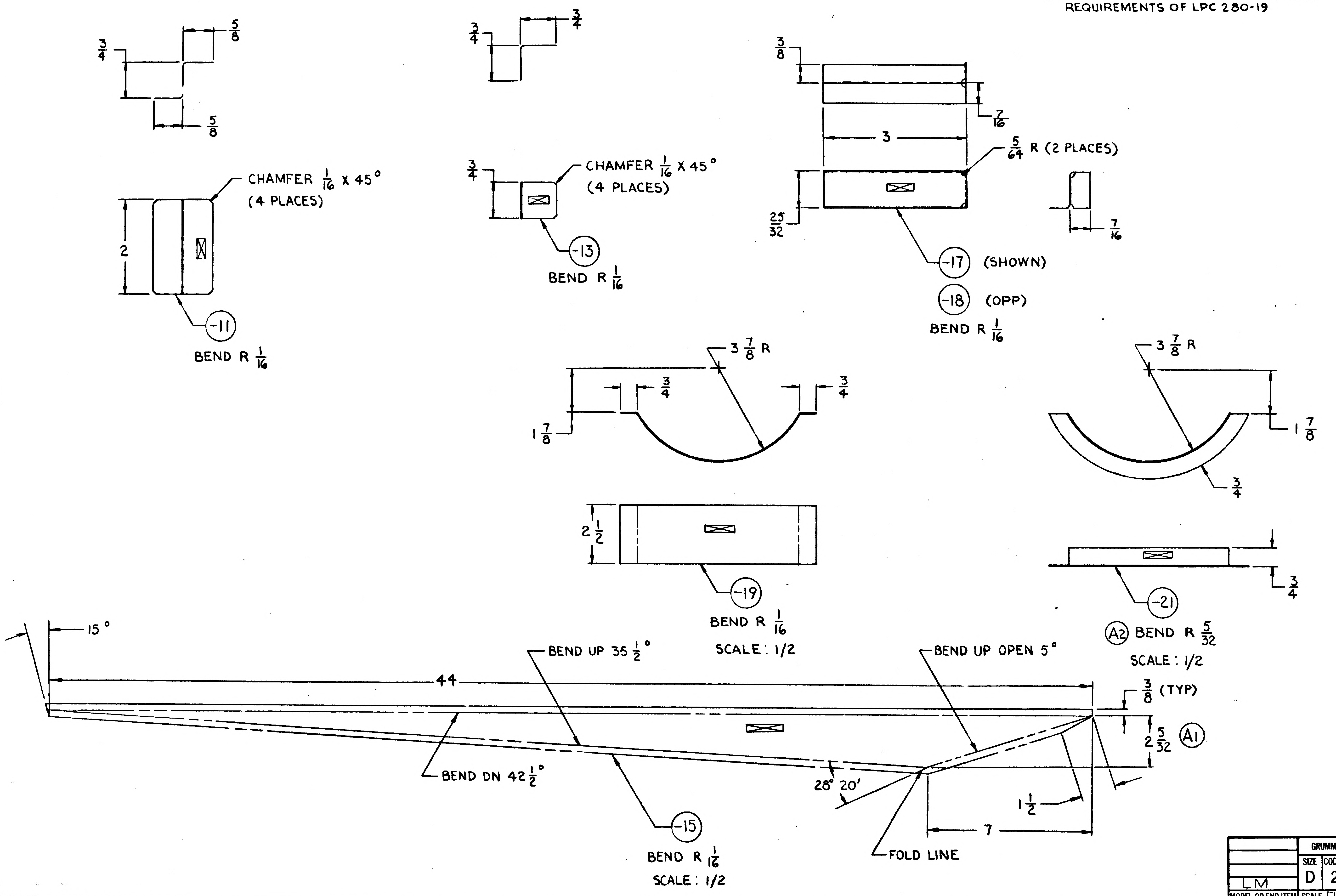
ENG 77.2 5-64

01

NAS 9-1100

NOTES:

1. ANNEALED BRIGHT ROLLED NICKEL FOIL COMMERCIALLY PURE (INCO 200 OR EQUIVALENT) PER ASTM-B162
2. MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19


3/4
5/8
5/8
3/4
3/4
3/8
7/16
3
5/64 R (2 PLACES)
25/32
7/16
CHAMFER 1/16 X 45°
(4 PLACES)
2
-11
BEND R 1/16
CHAMFER 1/16 X 45°
(4 PLACES)
3/4
-13
BEND R 1/16
-17 (SHOWN)
-18 (OPP)
BEND R 1/16
3 7/8 R
3/4
3/4
1 7/8
3 7/8 R
1 7/8
3/4
2 1/2
-19
BEND R 1/16
SCALE: 1/2
3/4
-21
A2 BEND R 5/32
SCALE: 1/2
15°
44
BEND UP 35 1/2°
BEND UP OPEN 5°
3/8 (TYP)
2 5/32 A1
BEND DN 42 1/2°
28° 20'
1 1/2
7
-15
BEND R 1/16
SCALE: 1/2
FOLD LINE

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18125	A

SCALE FULL & NOTED
SHEET 3.00

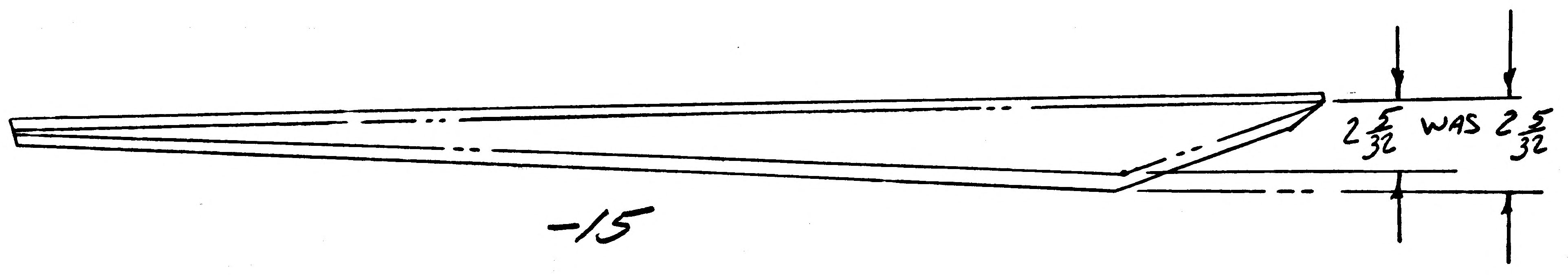
01 NAS 9-1100

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18125
EO NO. A1
CONTROL INFO NO. LDW 280 A - 0799



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: DRAWING CORRECTION

DESCRIPTION OF EO: ON-15 RELOCATED ARROW HEADS FOR 2 5/32.

GAEC EO RELEASE: VE 10/4

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK / SCRAP
✓		NOT REQ'D

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	VDI				WJH		RMS WR	
DATE	[illegible]				11.1.6		10-3-66	10/4/66

PRIORITY: E

DRAWING TITLE: ZEE D/S QUAD III AMBIENT HE ACCESS - P.I. SHIELD

DRAWING NO. LDW280-18125

EO NO. A1

ISSUED BY AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

EMF

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18125
EO NO. A2
CONTROL INFO NO. LDW280A-0665

ON – 21 ADD 5/32 BR (WAS 1/16)

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: PART CHANGE BE MADE WITH: EXISTING BR

DESCRIPTION OF EO: ON -21 5/32 BR (WAS 1/16)

GAEC EO RELEASE: 10/14

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LEM-1 (31) THRU	
		LEM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY / DATE: 10/13/66 VD1 — SUPPORT — RELIAB. GROUP — GROUP LEADER — STRESS GROUP 10/13/66 — LIAISON ENGRG — PROJ ENGRG 10-12-66 — ~~GOVT~~

PRIORITY: C

ZEE-DESCENT STAGE DRAWING TITLE QUAD II - AMBIENT He - ACCESS - PLUME IMPINGEMENT SHIELD

DRAWING NO. LDW280-18125 EO NO. A2

ISSUED BY R. VAN COTT X1153 SECTION VDI GROUP NO. 335 PL 35 EMF

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

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DWG. NO. LDW280-18125
EO NO. A4
CONTROL INFO NO. LDW280A3793

REVISE NEXT ASS'Y:

TO LDW 280-18125-17 ADD N/A LDW 280-28737; 1 REQ'D/MOD.
EFF LM1 (31) THRU LM15(95)

12/6
2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO PROVIDE ACCESS DOOR CLEARANCE

DESCRIPTION OF EO: REVISED N/A OF -17 TO INCLUDE LDW 280-28737; 1 REQ'D/MOD; EFF: LM1(31) THRU. LM15(45)

GAEC EO RELEASE: FR 12/6/

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31) THRU	
LM		LM15-(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REWORK / REQD SCRAP

APPROVED BY									
DATE					11/30/66	12/5/66		12-5-66	12/6/66
6	VD1	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: QUAD III AMB. ZEE O/S He, ACCESS - PLM IMPG. SHIELD

DRAWING NO.: LDW 280-18125

EO NO.: A4

ISSUED BY AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
EMF-A

DWG. NO. LDW280-18125		EO NO. A5
CONTROL INFO NO. LDW 280A-5030		

N/A CALLOUT IN ERROR

IN MODEL BLOCK

ON LDW280-18125 -19 &-21 N/A LDW280 -28744 REMOVE LTA-8(18) & LM-1(31) → LM-15(45)

ADD TO -19 &-21 N/A LDW280-51743 LM-1(31) (1 EA. REQD/MOD)
N/A LDW280-52743 LM-2(32) (1 EA REQD/MOD)

✓

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: N/A CALLOUT IN ERROR

DESCRIPTION OF EO: ON-19 &-21 REMOVE N/A LDW280-28744 LTA-8(18) & LM-1(31) THRU LM-15(45) ADDED TO -19 &-21 N/A LDW 280-51743 LM-1(31) (1 EA REQD) & N/A LDW280-52743 LM-2(32) (1 EA REQD)

GAEC EO RELEASE: 1/20/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				—				
DATE	1/17/67			—	1/18/67		1/19/67	1/19/67

1

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE D/S QUAD 3 AMB He TK PLUME IMP SHLD	LDW280-18125	A5

ISSUED BY V.A. CHRISTINA / J. STRAKOSCH SECTION VDI X1392 GROUP NO. 335 PL 35

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-18125		EO NO. A6
CONTROL INFO NO. LDW 280A-5277		

THIS IS A REVISION OF E.O. A5

ON LDW280-18125-19 & -21

ADD TO N/A LDW280-52743: LM-3(33) THRU LM-15(45) (1 EA REQ'D/MOD)

ADD N/A LDW280-28743 LTA-8(18) (1 EA REQ'D/MOD)

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: N/A CALLOUT IN ERROR

DESCRIPTION OF EO: REF EO A5 ON -19 & -21 ADDED LM-3(33) THRU LM 15(45) TO N/A LDW 280-52743 ADDED N/A LDW 280-28743 LTA 8(18) (1 EA REQD/MOD)

R GAEC C EO RELEASE: 1/30/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-3(33) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQD	DATE	1/27/67			1/27/67	1/27/67		1/28/67	1-28-67
REVISE DWG	RECORD EO	REWORK	SCRAP	6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE D/S QUAD 3 AMB He TK PLUME IMP SHLD	LDW 280-18125	A6

ISSUED BY V.A. CHRISTINA / J. STRAKOSCH SECTION VDI X1392 GROUP NO. 335 PL 35

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NAS 9-1100

C W.H.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18125 | EO NO. A7
CONTROL INFO NO. LM-2-33

IN MODEL BLOCK FOR -19 & -21 REVISE QUANTITIES
FOR NEXT ASSY: LDW280-51743, 1 REQD SHOULD BE 7 REQD
LDW280-52743, 1 REQD SHOULD BE 8 REQD

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO AGREE WITH NEXT ASSEMBLY REQUIREMENTS

DESCRIPTION OF EO: FOR -19 & -21, IN MOD/BLK, REVISED QTY REQD, FOR NEXT ASSY LDW280-51743, 7 REQD WAS 1. FOR NEXT ASSY LDW280-52743, 8 REQD WAS 1.

GAEC EO RELEASE: FR 0213

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		NOT	REQD	APPROVED BY	JAS				PSS	Ctf	RMc	
				DATE	2/20				2/14/67	2/14/67	2-17-67	2/14/67
REVISE DWG	RECORD EO	REWORK	SCRAP	-6-	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: ZEE~DESCENT STAGE~QUAD III AMBIENT He TANK~PLUME IMPG. SHIELD
DRAWING NO.: LDW280-18125
EO NO.: A7

ISSUED BY LIAISON J. MALONEY 2/14/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

WH. C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

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DWG. NO.	LDW280-18125	EO NO.	A8
CONTROL INFO NO.	LA. -29- 1050		

ON -11 & -13

QTY REQ'D PER N/A LDW280- 28771, 1 EA WAS 2EA.

RELEASED BY LIAISON

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REMOVED PARTS TO AGREE WITH N/A REQUIREMENTS	ON -11 & -13, QTY REQ'D PER N/A LDW280-28771, 1 EA WAS 2EA.	FL 017

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-4(31) THRU LM 5(45)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					✓	W.F.		
✓			✓	DATE	2/10				✓	2/13/67	2/17/67	2/14/67
REVISE DWG	RECORD EO	REWORK	SCRAP	6	VD1	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C29	ZEE - D/S QUAD III AMBIENT He - ACCESS - PLUME IMPINGEMENT SHIELD	LDW280-18125	A8

ISSUED BY LIAISON J. Altman x 7930 SECTION VD1 GROUP NO. 335 PL 35

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NAS 9-1100

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG NO. LEO280
EO NO. 705
CONTROL INFO NO. LDW280A 8997

IN M/B RESTRICT THE FOLLOWING PARTS FOR USE AS SHOWN.

DWG No	DASH No*	**REST. FOR USE ON	***WAS USED ON	CH. LTR	TITLE
✓LDW280-18125	-15,-17&-18	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	↑
LDW280-18130	-11,-13&-14	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	A8	
LDW280-18168	-17	LM-1 & LM-2	LM-1 THRU LM-15	A2	
LDW280-28730	-21	LM-2	LM-2 & LM-3	B8	
LDW280-28737	-15,-17,-19 -21,-25&27	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	SEE DWG
	-35	LM-1 & LM-2	LM-1 THRU LM-15		
LDW280-28738	-9	LM-1 & LM-2	LM-1 THRU LM-15	A8	
LDW280-28746	-15&-31	LM-1 & LM-2	LM-1 THRU LM-15	B4	
LDW280-28747	-13	LM-1 & LM-2	LM-1 THRU LM-15	B5	
LDW280-28755	-13	LM-2	LM-2 THRU LM-15	A8	
LDW280-28756	-13	LM-2	LM-2 THRU LM-15	C1	↓

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 1244 ok	5

REASON FOR EO
PROVISIONS FOR FITH SHIELD

DESCRIPTION OF EO
FOR * NOTED DWGS RESTRICTED DASH No * TO ** WAS ***.

(R) GAEC EO RELEASE: JK 9/1/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP ✓

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	8/31/67			8/30/67	9/1/67		9/1/67	9/1/67
	VDI							~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	705

9/1
ISSUED BY G. ZEMAN/J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 784
CONTROL INFO NO. LDW280B0091

ON DASH NOS. NOTED ✱ WITH N/A NOTED ✱✱ REMOVE LM4(34) THRU LM15(45) EFFECTIVITY REQMTS FROM THE FOLLOWING DRAWINGS.

DWG NO LDW280	DASH NO. ✱	TITLE	N/A NO. ✱✱ LDW280	CHG NO.
52648	-13	DOOR INSTL D/S QUAD II SEQ ACCESS	54553	B8
52768	-3-5	FOIL ASSY D/S QUAD II SEQ PLUME IMPINGE	52767	B3
52769	-11	SKIN ASSY D/S QUAD II SEQ PLUME IMPINGE	52767	B1
52744	-25-27	SKIN ASSY D/S QUAD II SEQ PLU IMP SHIELD	52742	A6
18130	-15-17	ZEE QUAD III UPR PLUME IMP. SHIELD	52744	A9
52743	-15-17	FOIL ASSY D/S QUAD II PLUME IMP SHIELD UPR DK	52742	A3
52741	-3	SKIN ASSY D/S QUAD II PLUME IMP SHIELD SIDE FIXED	52739	A2
18125	-19-21	ZEE D/S QUAD II AMBIENT He ACCESS PLM IMP SHLD	52743	B2
52740	-1	FOIL ASSY D/S QUAD II PLME IMP SHIELD SIDE FIXED	52739	A3
52837	-3	FRAME ASSY D/S QUAD II SEQ ACCESS DOOR	52648	A7
P18174	-1-3	BLANKET ASSY D/S QUAD II SEQ ACCESS COVER	52648	A1
52767	-1	SHIELD ASSY D/S QUAD II SEQ A/D PLM IMP	52648	B4
18221	-17 -11	ANGLE D/S SEQ ACCESS DOOR	52837 52665	A5
P17537	-31-33-35-37-39-41-47 -27-29	FRAME ASSY D/S SEQ THERMAL SHIELD ACCESS DR	52837 52674	A6
P18170	-15-17-19	LINK D/S SEQ ACCESS DOOR	52837	B2
P18172	-11-13 -11-15-17-18	TUBES D/S QUAD II SEQ A/D & JAMB L.H. VERT	52837 52674	A3
P18173	-11-15 -13-15	TUBE D/S QUAD II SEQ A/D L.H. LWR.	52837 52674	A4
P18214	-11-13-15-19-21-23	TUBE D/S QUAD II SEQ A/D L.H UPR	52837	A4
P18215	-11-13-15-17-19	PLATE D/S QUAD II SEQ A/D - YOKE	52837	A2
P18216	-11-13-15-17-19-21	PLATE D/S QUAD II SEQ A/D - YOKE	52837	A2
P18217	-11-13-15-17-19	TEE D/S SEQ ACCESS DOOR STRAP SPT	52837	B1
P18218	-11-13-15-17 -19	ANGLES D/S QUAD II SEQ A/D STRAP SPT	52837 52665	B2
P18181	-11-13-15-17-19 -13-19	TUBE D/S QUAD II SEQ A/D R.H. UPR	52837 52674	A1
P18180	-11-13-15-16-17-19	TUBE D/S QUAD II SEQ A/D	52674	A1
P18213	-11 -13-15-17	CLAMP D/S QUAD II SEQ ACCESS JAMB LH LWR	52674 52665	A3
P18176	-23-25	BLANKET ASSY D/S QUAD II SEQ UPR & SIDE PNL	52665	A6
P17581	-3-7	BLANKET ASSY D/S QUAD II VERT	52665	A4
P17575	-13	WASHER D/S THERMAL SHIELD LWR DK STD OFF	52665	B4
52582	-1-15	HINGE ASSY D/S QUAD II SEQ SPT ACCESS FLAP	52674	B3
52674	-1-3	JAMB ASSY D/S QUAD II SEQ ACCESS DOOR	52665	A4
52739	-3	SHIELD ASSY D/S QUAD II PLME IMP SIDE THERM	52665	A3
52742	-9-11	SHIELD ASSY D/S QUAD II IMP SHIELD UPR DK	52665	A9

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA 586	(5)

REASON FOR EO: ALSEP REDESIGN

DESCRIPTION OF EO: ON -✱ REMOVED LM-4-15 REQMTS FOR N/A LDW 280-✱✱.

GAEC EO RELEASE: JK 11/1/67

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34)	
		THRU	
LM		LM15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY									
DATE		10/31/67			10-27-67	10/30/67		10/30/67	11-1-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LED 280
EO NO.: 784

11-10
ISSUED BY: PLANTE 1156 SECTION: VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 912
CONTROL INFO NO. LDW280B2751

ON DASH NOS. NOTED * WITH N/A NOTED ** RESTRICT EFFECTIVITY REQUIREMENTS ON THE FOLLOWING DWG. TO LM-1(31) & LM-2(32). PARTS WERE USED ON LM-1(31) THRU LM-15(45)

	DWG NO	DASH NO. *	TITLE	N/A * *	CHANGE NO.
✓	LDW280-28803	-1	SEE DWG	LDW280-28804	A5
✓	-28805	-7		-28804	A7
✓	-28771	-9		-28770	B6
✓	-28772	-11		-28770	B7
	-18083	-15		-28772	A7
✓	-18083	-17		-28772	
	-18083	-15		-28805	
	-18083	-17		-28805	
✓	-18125	-11		-28771	B3
	-18125	-13		-28771	
	-18125	-11		-28803	
	LDW280-18125	-13	SEE DWG	LDW280-28803	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 2360 PKG 18 ⑤

REASON FOR EO: PLUME IMPINGEMENT PROTECTION

DESCRIPTION OF EC: RESTRICTED - * WAS USED ON LM-1 (31) THRU LM-15(45)

GAEC EO RELEASE: C | VC | 4/8/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	4/3/68	4/3/68		4-1-68	4/3/68		4/3/68	4-8-68
P	VDI	THERMAL SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 912

4.2
ISSUED BY FLANZARO/P. THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25
040568

01

NAS 9-1100

LDW280-18129 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28820	LEM-2 ㉜	1
LEM	LDW280-28820	LEM-1 ㉛	1
PART NO. LDW280-18129-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28820	LTA-8 ⑱	
PART NO. LDW280-18129-11		GAEC SCH NO. 522	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL/INFO Ⓐ 3/29/69 RFK		
		PRIM NO.	FX/001)	EMF
LAST DASH NO. USED	-15	220	ME-1	"A" 3/31/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ~ ±.031 ~ ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS-9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY	G.W.H	RELIABILITY	
LAYOUT BY	HANSMANN	THERMO	
CHECKED BY			
GP LDR	[illegible] 9/12/66		
V.D.I.	[illegible] 9/7		
STRUCT	TEB [illegible]	PROJ ENGR	R.M. Carbee 9-19
STRUCT	HILDEGEMANN 9/1	REL GROUP	B. H. 10-24-66
WEIGHTS	[illegible] 9-21		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ~ DESCENT STAGE
QUAD IV - E.C.S. BATTERY ~ PLUME
IMPINGMENT ~ UPPER CORNER

SIZE B
CODE IDENT NO. 26512
LDW280-18129 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

CDR = 7/23/66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00&1.10							INC LEO280-320 — ADDED SH 1.10	LM-7 THRU LM-15			E.COX 6-6-68		3-31-69
	2	1,2&3							INC EO A2	LM-2 THRU LM-15					
	3	1,2&3							INC EO A3	LM-1 THRU LM-15					
	4	1&1.10							INC LEO280-793	LM-4 THRU LM-15					
	5	1&1.10						Ⓡ	INC EO A5	LM-3					

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY	THERMO
	A							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18129	A

SCALE NONE SHEET 1.10 Ⓐ

ENG 77.16 3-66

01 NAS 9-1100

C.L.	QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C								LDW280-18129-15	E	SHEET	SEE NOTE 3			.00125×12×74	NOTE 3	NOTE 3	
C								LDW280-18129-11	E	SHEET	INCONEL		MAKE FROM	LDW280-17970-19	NONE	NONE	

C.L.: CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18129	A

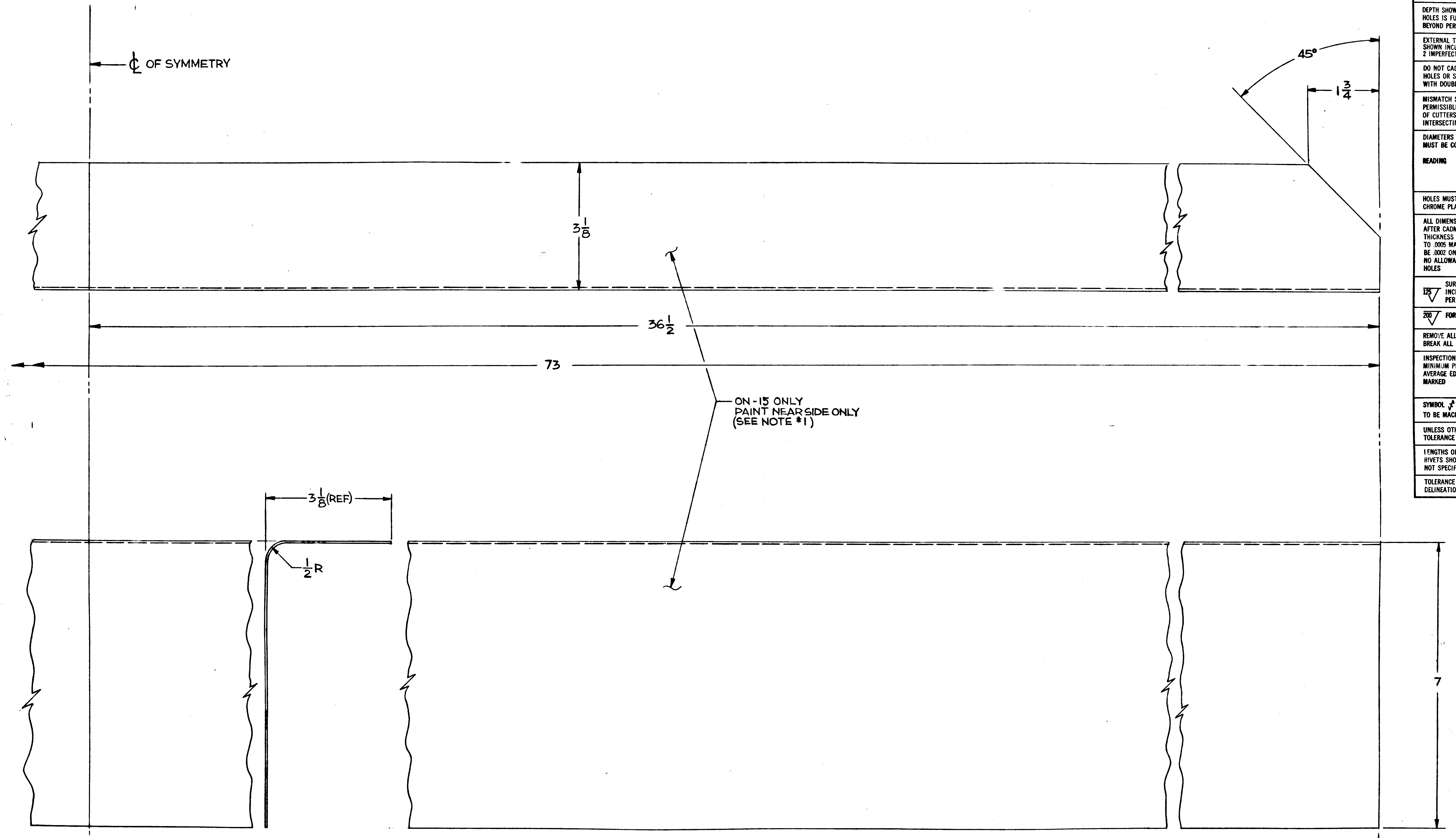
SCALE NONE SHEET 2.00 (A)

ENG 77.2 7-65

01

NAS 9-1100

NOTE :
1. FINISH PER LSP 280-5
2. FABRICATE -15 PER LPC280-19.
3. INCONEL 600 FOIL 12" WIDE PER AMS 5540E. SOLVENT WIPE FOIL BEFORE ASSY PER LSP-14-7011.



LDW280-18129-11 SHOWN
(A2) -15 IDENTICAL AS -11 EXCEPT AS NOTED

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

LDW280-18129A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	F	26512	LDW280-18129	A
	SCALE FULL		SHEET 3.00	

THIS IS A ORIGINAL DWG.

011

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-18129		EO NO. A3
CONTROL INFO NO. LDW280A-5703		

THIS IS A REVISION OF EO A2 LDW280-18129

REMOVE -13 (WAS REMOVE LM-2(32) THRU LM-15(45) EFF)
EFF FOR -15 LM-1(31) THRU LM-15(45) WAS LM-2(32) THRU LM-15(45)

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	

REASON FOR EO: LCR928-IMPROVE PAINT ADHESION

DESCRIPTION OF EO: REVISED EO A2. REMOVED -13. ADDED LM-1 EFF FOR -15

GAEC EO RELEASE C: JK 3/13/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	
LM		-LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	3/6/67			3/4/67	3/6/67		3-7-67	3-13-67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	YD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN DES. STAGE QUAD III UPPER CORNER	LDW280-18129	A3

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION YD1 GROUP NO. 335 PL 35

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280 | EO NO. 793
CONTROL INFO NO. LDW280B0053

ENG 32.2 REV 3-65

FOR THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS* THAT ARE EFF ON LM-4(34), REMOVE LM-4(34) THRU LM-15(45) REQMTS.

DRAWING NO. *	NEXT ASSY	TITLE	CHG NO.
LDW280-28561	LDW280-54553	SEE DWG	C5
-28773	-28561		A9
-28774	-28773		B1
-28775	-28773		B8
-28820	-28561		B2
-28819	-28820		A3
-18129	-28820		A4
-28776	-28561		A2
P17465	-28776		B3
P17514	-28776		B1
P17516	-28776		B4
P17535	-28776		B3
-28669	-54553		B1
-18239	-28561		A2
-54777			A2
P17496			A8
M17698			B7
P17479			A9
P17946			B3
P17967			B10
P18091			A3
-28757	-28561		B1
LDW280	LDW280	SEE DWG	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ *LCD 2011 CCA668 B (5)

REASON FOR EO: REDESIGN OF THERMAL SHIELDING FOR EQUIP STOWAGE.

DESCRIPTION OF EO: FOR *, REMOVED LM-4 THRU LM-15 REQMTS.

(R) GAEC C EO RELEASE: JK 11/8/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY									
DATE		11/7/67			11-6-67	11/7/67		11/7/67	11-7-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 793

11-10
ISSUED BY S. TAMRES/P. THORJUSEN x7033 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-18129	—	EO NO. A2
CONTROL INFO NO. LDW280A-5513		

IN M/B FOR-13 REMOVE LM-2(32) THRU LM-15(45) EFF

IN F/D & L/M ADD-15 SHIN IDENT. TO -13 EXCEPT MATL IS .00125 INCONEL 600 FOIL (WAS MAKE FROM LDW280-17970-19)

EFF FOR-15 LM-2(32) THRU LM-15(45) 1 REQD
N/A FOR-15 LDW280-22820
ADD NOTE* FABRICATE-15 PER LPC280-19

*= NEXT AVAILABLE NOTE NO.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: LCR 928 TO IMPROVE PAINT ADHESION

DESCRIPTION OF EO: REMOVED LM-2(32) THRU LM-15(45) EFF FOR-13 ADDED-15 ADDED NOTE *

C (B) GAEC EO RELEASE 2 FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY									
DATE	2/21/67			2/18/67	2/21/67		2/21/67	2-22-67	
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIN-DES STAGE QUAD III EPS BATT UPPER CORNER	LDW280-18129	A2

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18129
EO NO. A5
CONTROL INFO NO. LDW280B0034

IN M/B RESTRICT -15 TO LM-1 & LM-2

(5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1244

REASON FOR EO: TO PROVIDE FOR F.I.T.H. SHIELD

DESCRIPTION OF EO: IN M/B RESTRICTED -15 TO LM-1 & LM-2 WAS USED ON LM-1(31) THRU LM-3(33)

GAEC EO RELEASE: X 11/16/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-15

APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	11/13/67	SUPPORT	RELIAB. GROUP	11-11-67	11/14/67		11/14/67	11-15-67
P	VOI							

PRIORITY: C

DRAWING TITLE: D/S SKIN-QUAD IV. E.C.S. BATTERY, PLUME IMP. UPPER CORNER

DRAWING NO.: LDW280-18129

EO NO.: A5

CDR 11/17/67
ISSUED BY E. ROESSLER/THORJUSEN SECTION V.D.I. X1153 GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00,1.10,3.00						E.O. A1	ON-11 RELOCATED ARROW HEADS FOR 2 5/32 DIM. ADDED SH 1.10	NOT REQD	NOT	REQ'D	P. CAPPADORO 11-15-67	LD	6/28/68
	2	2.00,3.00						E.O. A2	ON-17 5/32 BR (WAS 1/16) LDW280-17970-17 (WAS -11)	LTA-8, LM-1-LM-6	✓				
	3	1.00						LEO280-320	FOR-11,-13,-14,-15 & -17 ADDED LEM-7 THRU LEM-15 EFF.	LM-7 — LM-15	NOT	REQ'D			
	4	1.00						E.O. A4	IN MOD BLK, FOR-15 & -17, REVISED EFF. WAS N/A LDW280-28744 LTA-8, LM-1 THRU LM-6	LTA-8, LM-1 THRU LM-15	✓				
	5	1.00						E.O. A5	ON-15 & -17 REMOVED N/A LDW280-28744 LTA-8 (18) REMOVED N/A LDW280-53744 LM-3(33) THRU LM-15 (45)			✓			
	6	1.00						E.O. A6	REF E.O. A5 ON-15 & -17 ADDED N/A LDW280-52744 EFF LM-3 (33) THRU LM-15 (45) (1 EA REQD/MOD)	LM-3 THRU LM-15 (45)	NOT	REQ'D			
	7	200					✓	LEO-280-559	FROM B/M & FLD REMOVED LDW280-17970-11,-15 & -49 & ADDED NOTE *1	LTA-8, LM-1 THRU LM-15	NOT	REQD			
	8	1.00				✓		LEO280-705 LCD 1244	RESTRICTED-11,-13 & -14 TO LTA8, LM-1 & LM-2 WAS LM-3 TO LM-15	LM-3 — LM-15		✓			
	9	1.00				✓		LEO280-784 LCD 1433 CCA586	ON-15 & -17 REMOVED LM-4 THRU LM-15 REQ. FOR N/A LDW280-52744.	LM-4 — LM-15		✓			

FOR CONTINUATION OF REVISIONS SEE SHEET ____

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18130	A Ⓐ
SCALE NONE		SHEET 1.10	

ENG 77.3 5-65

01

NAS 9-1100

LDW280-18130 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52744	LM-3 (33)	1
LM	LDW280-52744	LM-2 (32)	1
LM	LDW280-51744	LM-1 (31)	1
PART NO. LDW 280-18130-15-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28747	LM-2 (32)	1 EA
LM	LDW280-28747	LM-1 (31)	1 EA
LM	LDW280-28747	LTA8 (18)	1 EA
PART NO. LDW 280-18130-11, 13 & 14		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -17

GRUMMAN REL INFO A

PRIM NO. 207

MP-1A 6/28/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 .032 ± 1/2

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY		RELIABILITY	
LAYOUT BY	AMBROSIO	THERMO	
CHECKED BY			
GR. LEADER	9/16		
V.D.I	9/17		
STRUCTURE		PROJ ENGR	R. M. Carbee 9-19
STRUCTURE	HILDERMAN 9/17	REL GROUP	10/24/66
WEIGHTS	7-21		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE QUAD III UPPER PLUME IMP SHIELD

SIZE B

CODE IDENT NO. 26512

LDW280-18130 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18130 -17	E	COLLAR	SEE NOTE #1						
								-15	E	STRAP	SEE NOTE #1						
								-14	E	ZEE	SEE NOTE #1						
								-13	E	ZEE	SEE NOTE #1						
								LDW280-18130-11	E	ZEE	SEE NOTE #1						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18130	A
SCALE NONE			SHEET 2.00

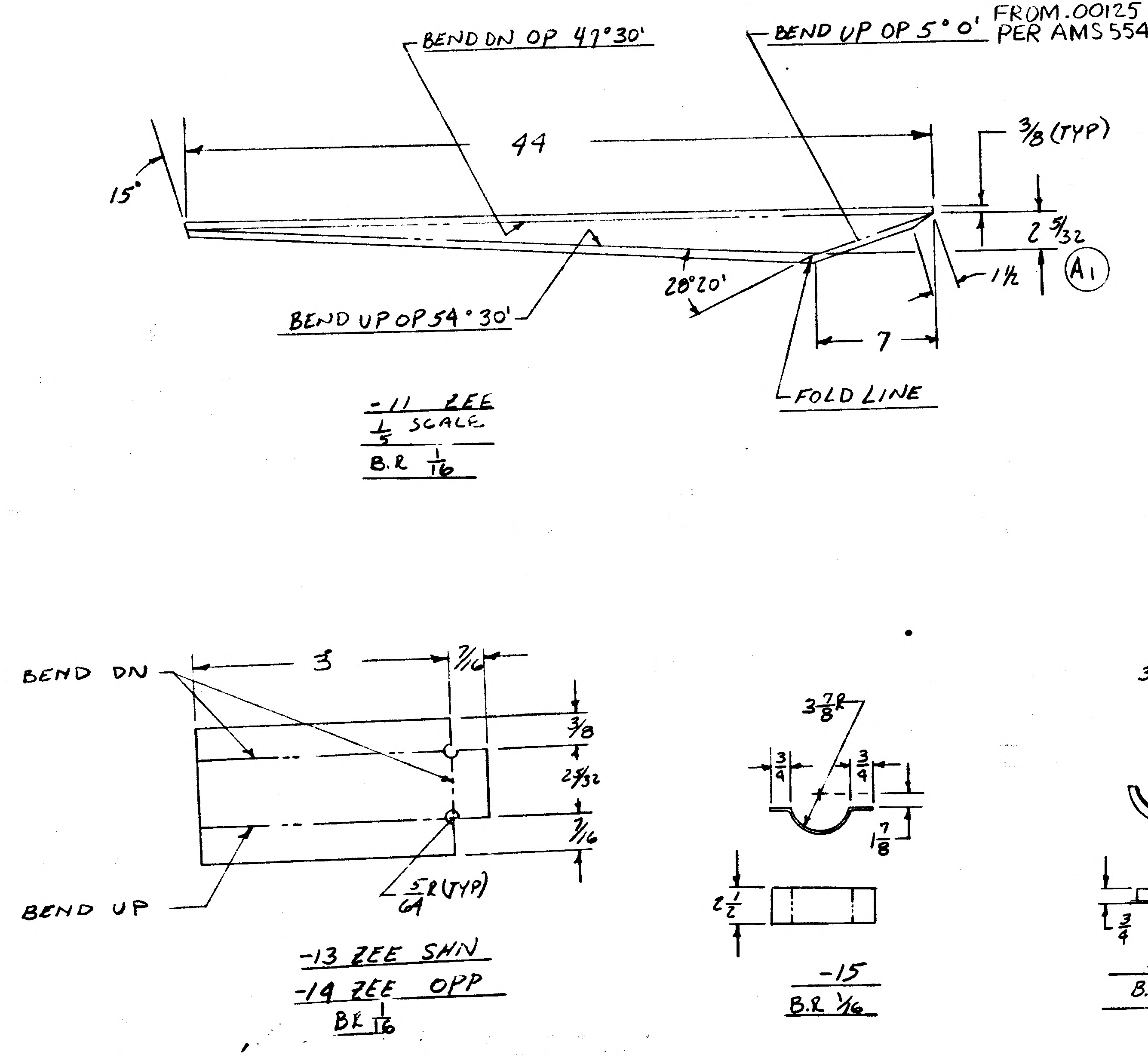
ENG 77.2 7-65

01

NAS 9-1100

LAYOUT RELEASE, TO BE REDRAWN ON A PRODUCTION FORMAT.

NOTES:
1. MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19, PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.



4
3
2
1
BEND DN OP 47°30'
BEND UP OP 5°0'
44
3/8 (TYP)
15°
2 5/32
A1
1 1/2
28°20'
BEND UP OP 54°30'
7
FOLD LINE
-11 ZEE
1/2 SCALE
B.R. 1/16
BEND DN
3
7/16
3/8
2 5/32
7/16
BEND UP
5/64 R (TYP)
-13 ZEE SHN
-14 ZEE OPP
B.R. 1/16
3 7/8 R
3/4
3/4
1 7/8
2 1/2
-15
B.R. 1/16
3 7/8 R
1 7/8
3/4
3/4
-17
B.R. 5/32
A2

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
C	26512	LDW 280-18130	A

LEM
MODEL OR END ITEM
SCALE NONE
SHEET 00

01

NAS 9-1100

C

GRUMMAN AIRCRAFT ENGINEERING CORP. *
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG NO. LE0280
EO NO. 705
CONTROL INFO NO. LDW280A 8997

IN M/B RESTRICT THE FOLLOWING PARTS FOR USE AS SHOWN.

DWG No	DASH No*	**REST. FOR USE ON	***WAS USED ON	CH. LTR	TITLE
✓LDW280-18125	-15,-17&-18	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	↑
✓LDW280-18130	-11,-13&-14	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	A8	
LDW280-18168	-17	LM-1 & LM-2	LM-1 THRU LM-15	A2	
LDW280-28730	-21	LM-2	LM-2 & LM-3	B8	
LDW280-28737	-15,-17,-19 -21,-25&-27	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	SEE DWG
	-35	LM-1 & LM-2	LM-1 THRU LM-15		
LDW280-28738	-9	LM-1 & LM-2	LM-1 THRU LM-15	A8	
LDW280-28746	-15&-31	LM-1 & LM-2	LM-1 THRU LM-15	B4	
LDW280-28747	-13	LM-1 & LM-2	LM-1 THRU LM-15	B5	
LDW280-28755	-13	LM-2	LM-2 THRU LM-15	A8	
LDW280-28756	-13	LM-2	LM-2 THRU LM-15	C1	↓

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1244 ok

5

REASON FOR EO: PROVISIONS FOR FITH SHIELD

DESCRIPTION OF EO: FOR * NOTED DWGS RESTRICTED DASH No * TO ** WAS ***.

Ⓡ GAEC EO RELEASE: JK 9/1/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	8/31/67			8/30/67	9/1/67		9/1/67	9/1/67
	VDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 705

9/1 ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18130
EO NO. B1
CONTROL INFO NO. LDW280B7823

(REF EO A5)
IN MOD BLK FOR-15 & -17

REINSTATE N/A LDW280-28744 - LTA8(18) - 1 REQD/MOD

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: TO AGREE WITH NEXT HIGHER ASSEMBLY DWG. N/A REMOVED BY EO. ERROR.

DESCRIPTION OF EO: (REF EO A5) IN MOD BLK FOR-15 & -17 REINSTATED N/A LDW280-28744-LTA8(18)

GAEC EO RELEASE: JK 5/20/69 (5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP
✓			

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	5/[illegible]/69			5-12-69	5/[illegible]		5/16/69	5/19/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE D/S- QUAD III PLUME IMP. SHIELD	LDW280-18130	B1

ISSUED BY DON RAGAS 87222 SECTION VD1 GROUP NO. 280 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

*

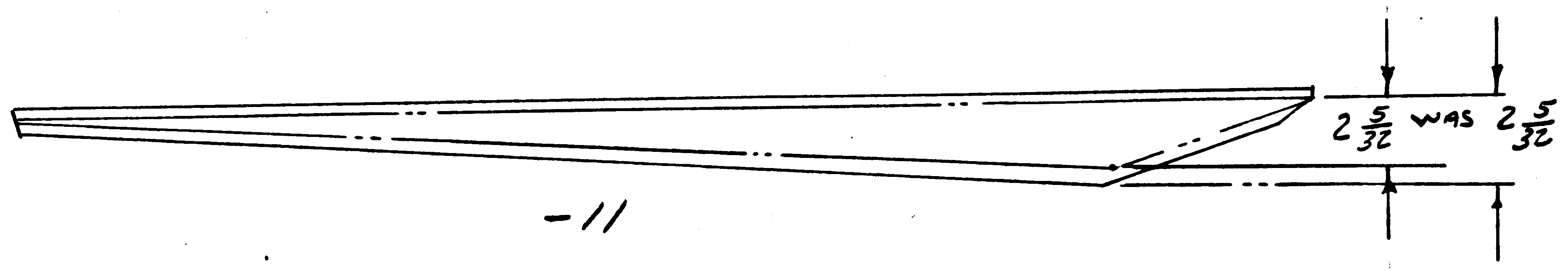
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18130 EO NO. A1

CONTROL INFO NO. LDW 280A-0800



DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: DRAWING CORRECTION

DESCRIPTION OF EO: ON-11 RELOCATED ARROW HEADS FOR 25/32 DIM.

GAEC EO RELEASE: LE 10/4

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
		NOT REQ'D	
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP NOT REQ'D

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY							RMc	
DATE	9/29/66				10/1/66		10-3-66	10/4/66
	VDI							

PRIORITY: E

DRAWING TITLE: ZEE QUAD UPPER PLUME IMP SHIELD

DRAWING NO. LDW280-18130

EO NO. A1

ISSUED BY AMBROSIO / STRAKOSCH X 1154 SECTION VEH DES INT GROUP NO. 335 PL 35

EMF

01

NAS 9-1100

-k

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18130
EO NO. A2
CONTROL INFO NO. LDW280A-0666

ON-17 ADD $5/32$ BR (WAS $1/16$) &

MAKE FROM LDW280-17970-17 (WAS -11)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: PART CANNOT BE MADE WITH EXISTING BR

DESCRIPTION OF EO: ON-17 $5/32$ BR (WAS $1/16$) LDW280-17970-17 (WAS -11)

GAEC EO RELEASE: C ⓡ LC 10/14

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LEM-1 (31) THRU	
		LEM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG ✓ · RECORD EO

DISPOSITION OF PARTS: REWORK ✓ · SCRAP

APPROVED BY	JAS	MW/MS 10/12/66	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	10/12/66				10/13/66		RA 10-12-66	10/14/66
	VDI	~~SUPV~~						~~SUPV~~

PRIORITY: C

ZEE

DRAWING TITLE: QUAD II UPPER PLUME IMP. SHIELD

DRAWING NO. LDW280-18130

EO NO. A2

ISSUED BY R. VAN COTT X1153 SECTION VDI GROUP NO. 335 PL 35 EMF

01 NAS 9-1100

C H.G.
ENG 32.1 REV 3-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-R

DWG. NO. LDW280-18130
EO NO. A4
CONTROL INFO NO. LM-29-1028

IN MODEL BLOCK FOR -15 & -17 REVISE NEXT ASSYS
N/A LDW280-28744 LTA 8(18)
LDW280-51744 LM-1 (31)
LDW280-52744 LM-2 (32)
LDW280-53744 LM-3 (33) THRU LM-15 (45)
} 1 REQ'D PER ASSY

(WAS) N/A LDW280-28744 LTA-8(18), LM-1(31) THRU LM-6(36)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: INCORRECT NEXT ASSY CALLED OUT

DESCRIPTION OF EO: IN MOD BLK, FOR -15 & -17, REVISED EFF. WAS N/A LDW280-28744, LTA-8, LM1 THRU LM-6.

GAEC EO RELEASE: C VE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18) LM-1(31)	
		THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY				~	W.7.	RMG		
DATE	2/20			~	1-10-67	1-11-67	1-10-67	
6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C29
ZEE-QUAD III DRAWING TITLE UPPER PLUME IMP SHIELD
DRAWING NO. LDW280-18130
EO NO. A4

ISSUED BY LIAISON J. ALTMAN X7930 H. PALLMEYER X1123 SECTION VEH DES INT GROUP NO. 335 PL 29

0 1
NAS 9-1100

ENG 32.1 REV 3-65

C *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EM, - A

DWG. NO. LDW280-18130
EO NO. A5
CONTROL INFO NO. LDW280A-5031

N/A CALLOUT IN ERROR

IN MOD BLOCK

ON LDW280-18130-15 & -17 REMOVE N/A LDW280-28744 LTA-8(18) EFF
REMOVE N/A LDW280-53744 LM-3(33) THRU LM-15(45)

✓

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: N/A CALLOUT IN ERROR

DESCRIPTION OF EO: ON -15 & -17 REMOVED N/A LDW280-28744 LTA-8(18)
REMOVED N/A LDW280-53744 LM-3(33) THRU LM-15(45)

GAEC EO RELEASE C
1/21/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(33 THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			✓
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				—	WJH			
DATE	1/17/67			—	1/18/67		1-19-67	1-20-67
6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE D/S QUAD III UPR PLUME IMP SHIELD	LDW280-18130	A5

ISSUED BY V.A. CHRISTINA / J. STRAKOSCH SECTION VDI X1392 GROUP NO. 335 PL 35

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18130
EO NO. A6
CONTROL INFO NO. LDW280 A - 5278

THIS IS A REVISION OF E.O. A5

ON LDW280-18130-15 & -17 ADD

N/A LDW280-52744 LM-3(33) THRU LM-15(45) (1 EA. REQD/MOD)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

2

REASON FOR EO: N/A CALLOUT IN ERROR

DESCRIPTION OF EO: REF E.O. A5 ON -15 & -17 ADDED N/A LDW280-52744 EFF LM-3(33) THRU LM-15(45) (1 EA. REQD/MOD)

GAEC EO RELEASE: FR 1/31/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM			
		LM-3(33) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓		NOT	REQ	DATE	1/27/67			1/27/67	1/27/67		1/27/67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

GOVT

PRIORITY: C
DRAWING TITLE: ZEE DIS QUAD 3 UPR PLUME IMP SHIELD
DRAWING NO.: LDW280-18130
EO NO.: A6

ISSUED BY V.A. CHRISTINA / J. STIFKOVICH SECTION V.D.I X1392 GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.2 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LEO 280
EO NO. 559
CONTROL INFO NO. LDW280A 6306

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW: REMOVE LDW280-17970-ALL DASH NUMBERS AND ADD "SEE NOTE *"

IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING No.	CHANGE #	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3	⬡	LM-1 THRU LM-15	
LDW280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
LDW280-28734	B2	□	LTA-8 LM-1 THRU LM-3	
LDW280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
LDW280-28740	B3	□	LTA-8 LM-1	
LDW280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
LDW280-28747	B4	□	LTA-8 LM-1 THRU LM-15	
LDW280-28750	39	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW280-28772	B6	□	LM-1 THRU LM-15	
LDW280-28775	B7	□	LTA-8 LM-1 THRU LM-15	
LDW280-28805	A6	□	LM-1 THRU LM-15	
LDW280-28806	A4	□	LTA-8 LM-1 THRU LM-15	
LDW280-51824	A3	□	LM-1 THRU LM-15	SEE DWG

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE

DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △

GAEC EO RELEASE: 5 C JS 4-19-7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT REQ SCRAP

PRIORITY: C

APPROVED BY: JAP DATE 4/10/67 6 VD1

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
		4/10/67	4/10/67		4/13	Bott 4-18-67

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 559

ISSUED BY H. PALLMEYER / J. STRAKOSCH 7034 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REVISON NO CHANGE F. HIPPLER 8-10-67 LOFTED DWG WAS DIM DWG						
A	1	1.10, 3.00	4A					EOA1	IN F/D FOR-11, 12 5/8 WAS 10 5/8	LM-1 THRU LM-15	NOT	REQD	F HIPPLER 8-10-67	☒	☒
	2	1.10, 3.00	5A					LE0280-406	ADDED NOTE 1						
	3	1.10, 3.00						EOA3	IN F/D FOR-11, RELOCATED 7/8 TYP DIM						
	4	1.00, 2.00 3.00	4A 6A 7B			✓		LCD 2008	REVISED -11 & -19 PER SHOP TEMPLATE; EFF LM-1 WAS LM-1 THRU LM-15 ADDED -1 ASSY EFF LM-1. ADDED -3 ASSY, -21 & -23 EFF LM-2 & LM-3	NOTED					
	5	1.10				✓		LCD 2008	REF EOA3 NOT APPLICABLE	NOTED					
	6	1.00 1.10				✓		LCD 2008 ok	REMOVED EFF LM-4 THRU LM-15 ON -11, -13, -15, -17, & -19 ADDED NOTE 2	LM-4 THRU LM-15				8/24	8/24/67
B	1	1, 1.10, 2, 3 & 4		U		✓		LCD 2008 OK	ADDED -5, -25, -27 & -29. ADDED EFF LM-4 & LM-5 TO -13 & -15. ADDED SH 4.	LM-4 & LM-5	NOT	REQD JK	NARONIS 2/12/68	2/12	2/19/68
C	1	1, 1.10 2, 3 & 4				✓		LCD 2008 OK	IN F/D, B/M & MOD BLK REMOVED -5 ASSY, -27 AND SPOTWELD INFORMATION, ADDED -31, NOTE 3 AND DETAIL "B"	LM-4 LM-5		✓	NAROWS 3/2/68	J. Pustari 3/4/68	3-5-68

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	PROJ ENGR	REL GROUP
A	—	J. Pusater 8/15	NM 8/15/67	8/15				
B	Thoy 2/15/68	2/15/68	W/H 2/17/68	2/19				
C	Thoy 3/4/68	3/4/68	W/H 3/4/68	W/H FEB 3/4				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18132	C

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

LDW280-18132 C

LM	LDW280-28832	LM-5(35)	2
LM	LDW280-28832	LM-4(34)	2
PART NO. LDW280-18132-29			
LM	LDW230-28832	LM-5(35)	1
LM	LDW280-28832	LM-4(34)	1
PART NO. LDW280-18132-25 & 31			
LM	LDW280-28832	LM-3 (33)	1
LM	LDW280-28832	LM-2 (32)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18132-3		GAEC SCH NO.	

LM	LDW280-28832	LM-5(35)	2
LM	LDW280-28832	LM-4(34)	2
LM	LDW280-28832	LM-3(33)	2
LM	LDW280-28832	LM-2(32)	2
LM	LDW280-28832	LM-1 (31)	2
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18132-13		GAEC SCH NO.	

LM	LDW280-28832	LM-5(35)	1
LM	LDW280-28832	LM-4(34)	1
LM	LDW280-28832	LM-3(33)	1
LM	LDW280-28832	LM-2(32)	1
LM	LDW280-28832	LM-1(31)	1
PART NO LDW280-18132-15			
LM	LDW280-28832	LM-3(33)	1
LM	LDW280-28832	LM-2(32)	1
LM	LDW280-28832	LM-1(31)	1
PART NO. LDW280-18132-17			
LM	LDW280-28832	LM-1(31)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18132-1		GAEC SCH NO. 52–	

WORK PACKAGE FUNCTION NO 111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	C	C	C	C	C				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REL INFO C	
LAST DASH NO. USED	-31	PRIM NO. 207	K(00) MP 1C 3/6/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	ROESSLER 11-7-66	RELIABILITY	
LAYOUT BY	ROESSLER RR		
CHECKED BY			
GR.LEADER	J.STRAKOSCH 11-10-66		
VEH DES INT	J.PUSATERI 11-11-66		
STRUCTURES	F.BUNCE 11-11-66	PROJ ENGR	R.M.CARBEE 11-12-66
STRUCTURES		REL GROUP	J.GROD 11-12-66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY
DESCENT STAGE - PROP TANK COVER
METEOROID PROTECTION - FWD

SIZE	CODE IDENT NO.		
B	26512	LDW280-18132	C
SCALE	NONE	SHEET 1.00 OF 5	

ENG 77.1 12-65

SUPERSEDES LDW280-18132 NC 11·7·66 C'CDR 3/8/68

01

NAS 9-1100

QTY PER ASSEMBLY					-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18132-31	E	RING	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004×26×26	NONE	NONE	
								-29 ↑	E	STRIP	↑	↑	↑	.004×1×2	NONE	NONE	
								-25	E	SHIELD				.004×26×26	NONE	NONE	
					1			-23	E	RING				.004×26×26	NONE	NONE	
					1			-21	↑	SHIELD				.004×26×26	NONE	NONE	
						1		-19		RING				.004×26×26	NONE	NONE	
								-17		STRIP				.004×2×3	NONE	NONE	
								-15		STRIP				.004×2×4	NONE	NONE	
								-13 ↓		STRIP	↓	↓	↓	.004×2×3	NONE	NONE	
						1		LDW280-18132-11		SHIELD	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004×26×26	NONE	NONE	
								LDW280-18132-3	↓	SHIELD ASSY WELDED					FLW/SWT	NONE	
								LDW280-18132-1	E	SHIELD ASSY WELDED					FLW/SWT	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	FOIL WELDING	LSP 14-6102
						SWT	SEALING (SW)	LSP 14-14400

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

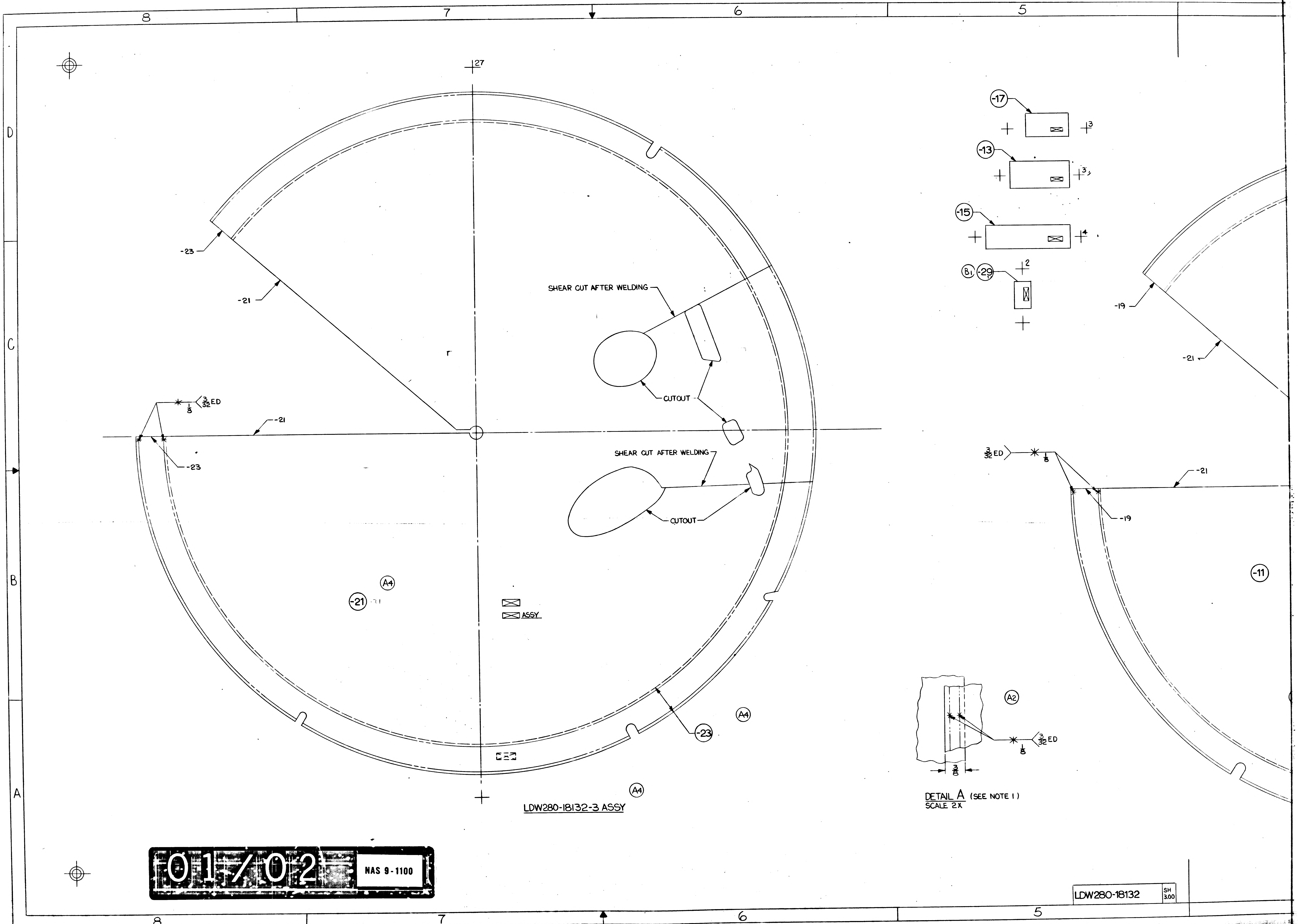
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18132	C
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


8
7
6
5
D
C
B
A
27
-17
-13
-15
B1
-29
3
4
2
-23
-21
SHEAR CUT AFTER WELDING
CUTOUT
$\frac{1}{8}$
$\frac{3}{32}$ ED
-21
-23
SHEAR CUT AFTER WELDING
CUTOUT
A4
-21
ASSY
-23
A4
A4
-19
-21
-21
-19
-11
A2
$\frac{3}{8}$
01/02
NAS 9-1100

LDW280-18132-3 ASSY

DETAIL A (SEE NOTE 1)
SCALE 2X

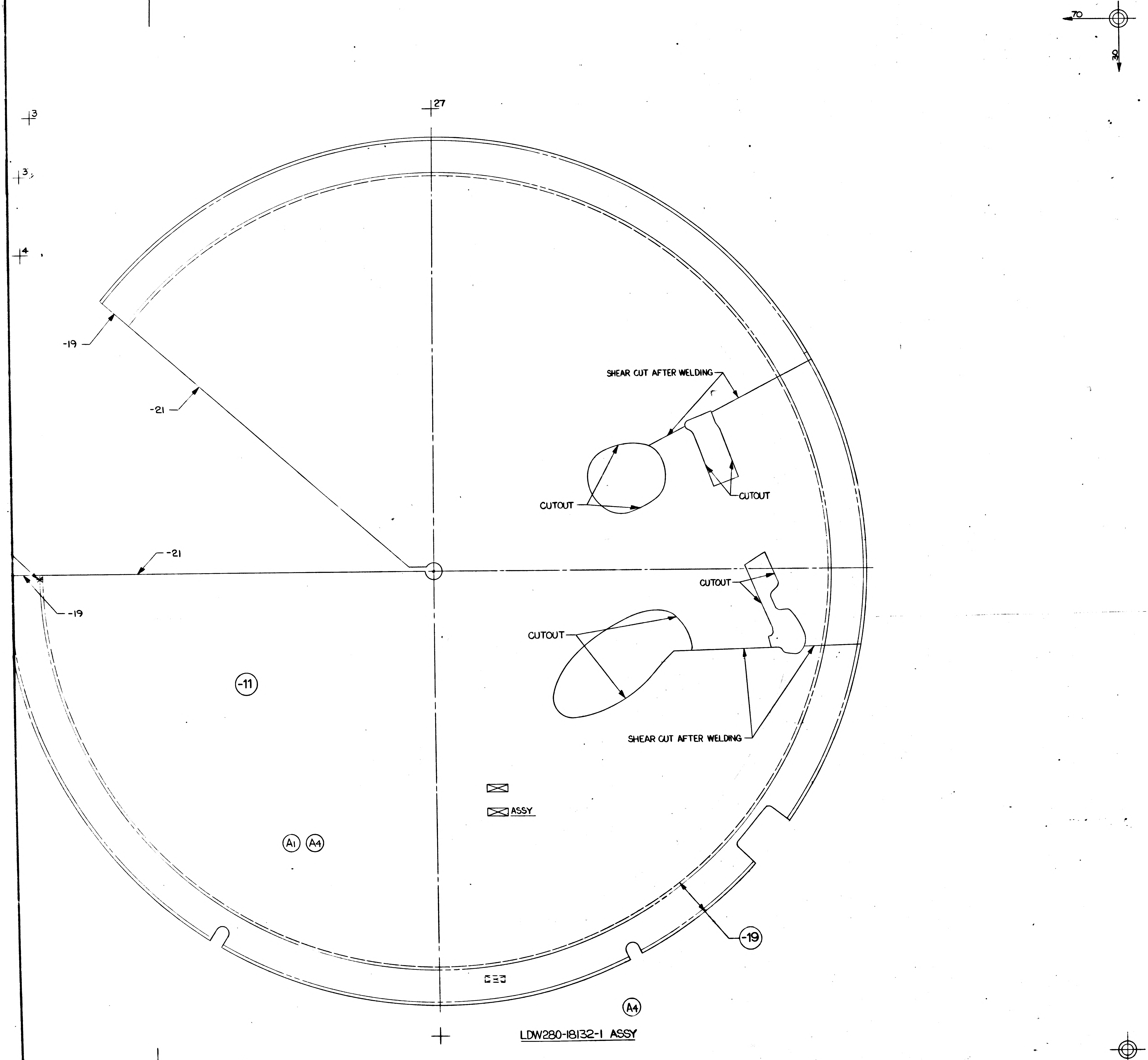
LDW280-18132

SH 3.00

overlay ok T> 8.3.67

TRIMS OK

OVERLAY OK T.S. 8.9.67



LDW280-18132-1 ASSY

NOTES:
1. WHERE PARTS ARE LARGER THAN THE BASIC STOCK SIZE OF AVAILABLE MATERIAL SHEETS MAY BE SPLICED AS SHOWN IN DETAIL "A". LOCATION, DIRECTION & NUMBER OF SPLICES OPTIONAL.
2. NO TOOLING HOLES PERMITTED IN PARTS.
3. IF -25 & -31 ARE LARGER THAN THE BASIC STOCK SIZE OF ORIGINAL MATERIAL, SHEETS MAY BE SPLICED AS SHOWN IN DETAIL "B" SHEETS ARE TO BE TAPED TOGETHER AND THEN SPOT WELDED ON NEXT HIGHER ASSY. LOCATION, DIRECTION & NUMBER OF SPLICES ARE OPTIONAL

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.58 SQ. FT.

PRINT TRIM LINE

D

C

B

A

LDW280-18132 C

LDW280-18132 C

102/02

NAS 9-1100

W280-18132 SH 3.00

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM MODEL OR END ITEM	SIZE J	CODE IDENT NO. 26512	LDW280-18132	C
	SCALE FULL & NOTED		SHEET 3.00	

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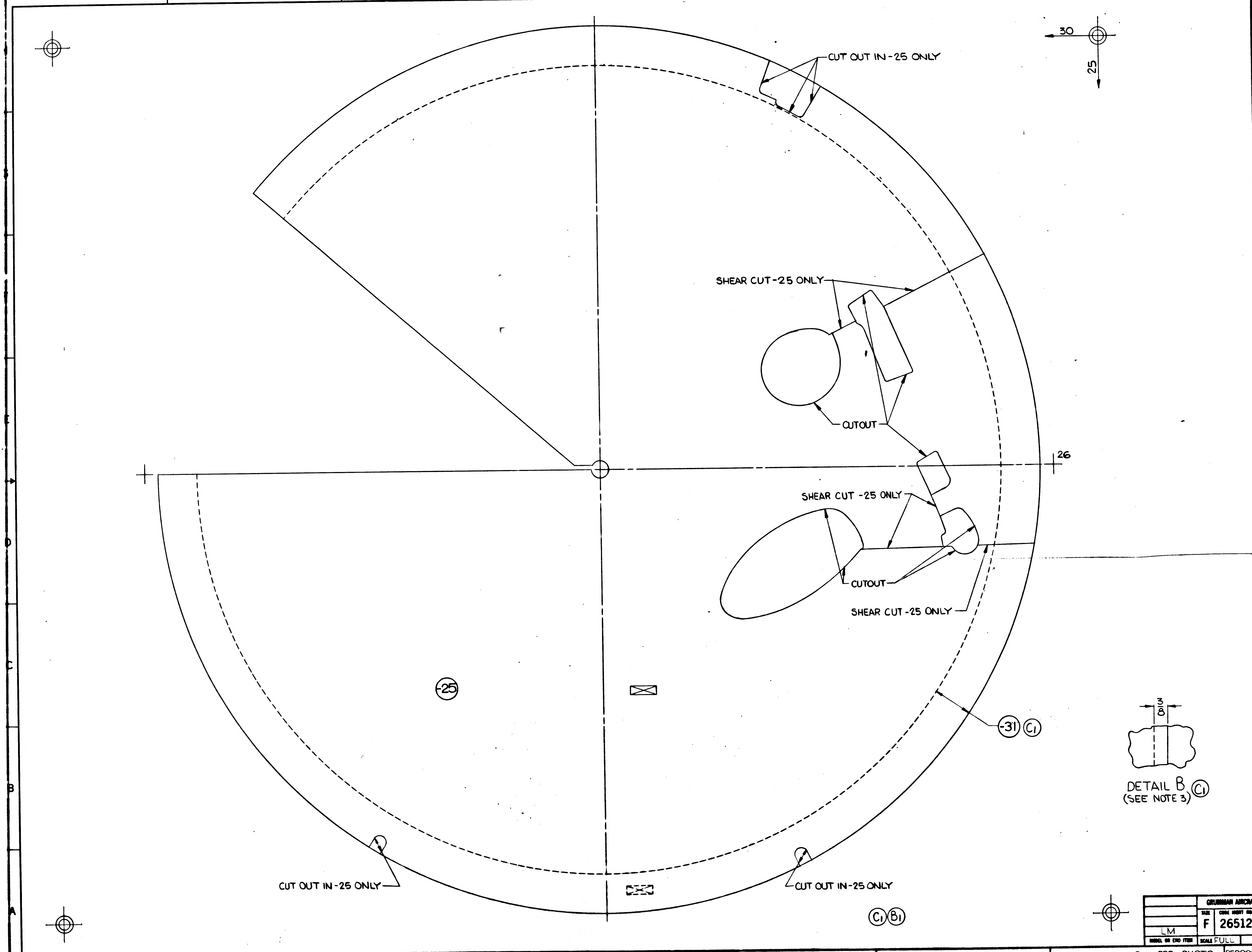
TRAN O.K. T3 2-10-68

Geo OK 2/10/68



~~MANUFACTURING OPERATIONS~~
~~UNLESS OTHERWISE SPECIFIED~~
~~NOTES CHECKED √ APPLY TO THIS DWG.~~

~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.~~

~~FILLET AND INSIDE CORNER RADII TOLERANCES~~
~~.016R TO .062R ± .010~~
~~.063R TO .250R ± .015~~
~~OVER .250R ± .030~~

~~DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.~~

~~EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.~~

~~DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.~~

~~MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.~~

~~DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING~~

~~HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.~~

~~ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES~~

~~125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10~~

~~200 √ FOR ALL DRILLED HOLES~~

~~REMOVE ALL BURRS. BREAK ALL EDGES .015-.031~~

~~INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS~~

~~SYMBOL √ DENOTES SURFACE TO BE MACHINED~~

~~UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32~~

~~LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.~~

~~TOLERANCE ON LOFTED DELINEATIONS IS~~

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

	SIZE	CODE IDENT NO.		
LM	F	26512	LDW280-18132	C
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

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NAS 9-1100

H.G.
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18132
EO NO. A1
CONTROL INFO NO. LM-2-3111

IN FLD, FOR-11, 12 5/8R WAS 10 5/8R

PARTS NOT MADE
DUE TO UNAVAILABILITY
OF MATL

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: DWG CORRECTION DIM INCORRECT

DESCRIPTION OF EO: IN FLD, FOR-11, 12 5/8R WAS 10 5/8R

GAEC EO RELEASE: FR 2

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
		thru	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQD
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	12/20				12/10/66	12/10/66	12-12-66	12-10-66
—/—	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD - D.S. - PROP TANK COVER - METEOROID PROT - FWD	LDW280-18132	A1

ISSUED BY LIAISON C. FARLEY X3604 12/9/66 SECTION V. D. I. GROUP NO. 335 PL 35

01 NAS 9-1100

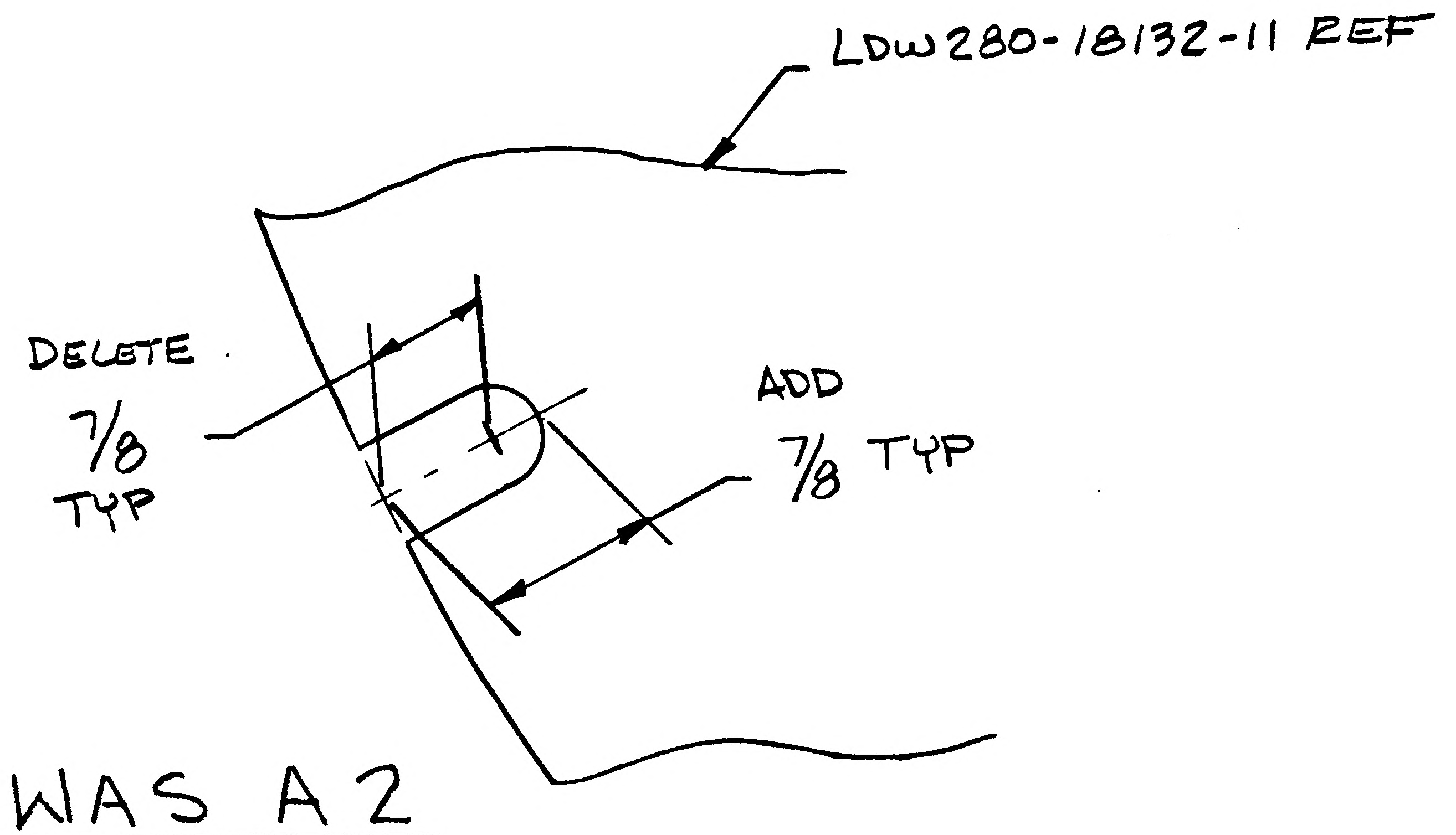
H.G
ENG 32.1 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18132	EO NO. A3
CONTROL INFO NO. LM-2-3194	

IN FLD, FOR-11, RELOCATE 7/8 TYP DIM AS SHOWN



E.O. NUMBER WAS A2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
DWG CORRECTION - INCORRECT DIM CALLOUT	IN FLD, FOR-11, RELOCATED 7/8 TYP DIM	Ⓡ C LE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE						STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		NOT	REQD	-6-	VDI 1/25	SUPPORT	RELIAB. GROUP	GROUP LEADER		1/9/67	1/7/67	1-11-67	1/9/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	SHIELD - D.S. - PROP TANK COVER - METEOROID PROT - FWD	LDW280-18132	A3

ISSUED BY LIAISON C. FARLEY X3604 1/7/67 SECTION V. D. I. GROUP NO. 335 PL 35

LDW280-18134 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23579	D.V.TEST(70)	1 EA
LM	↑	LM-6(36)	1 EA
LM		LM-5(35)	1 EA
LM	↓	LM-4(34)	1 EA
LM	LDW280-23579	LM-3(33)	1 EA
PART NO. LDW280-18134-11, -13, -17 & -19		GAEC SCH NO. 5/2	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO			
		PRIM NO.	G(001)		EMP
LAST DASH NO. USED	-17	233	MD-14	12/19/6	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	FITZGERALD 12/5/66	RELIABILITY	
LAYOUT BY	MARZELLA		
CHECKED BY	R. SMITH 12-7-66		
~~GR. LEADER~~			
VEH.DES.INT	[illegible] 12/14/66		
STRUCTURES	MH 12/15/66	PROJ ENGR	RM Barfee 12-15
STRUCTURES	[illegible] 12/15	REL GROUP	Fagiano 12/16/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE~SCIENTIFIC EQUIP.
BAY CLOSURE~ Y UPPER

SIZE	CODE IDENT NO.		
B	26512	LDW280-18134	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	[redacted] APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00 & 3.00						EO A1	INITIAL DRAWING RELEASE PARTS MADE PER EO	LM-3 THRU 6 DES.VER.TEST	NOT	REQD	FITZ-GERALD		12-16-66
	2	1.00, 1.10, 2.00 & 3.00							REMOVED -15, ADDED -19 C.J. GB	LM-3 THRU 6 DES.VER.TEST		-15	12-7-66 RMS		

CHG APPROVED	LTR	~~GROUP LDR~~	VEH.DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
	A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18134	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18134-17	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024	.050 x 2 x 4	T42	88	
								LDW280-18134-19	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024	.050 x 2 x 3	T42	88	
								LDW280-18134-13	E	ANGLE	AL ALLOY EXTR	QQ-A-200/11	7075T6511	DIE#38385 x 8 3/4	NOTE 2	88	
								LDW280-18134-11	E	ANGLE	AL ALLOY EXTR	QQ-A-200/11	7075T6511	DIE#38385 x 10	NOTE 2	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T42	AL HT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18134	A

SCALE NONE

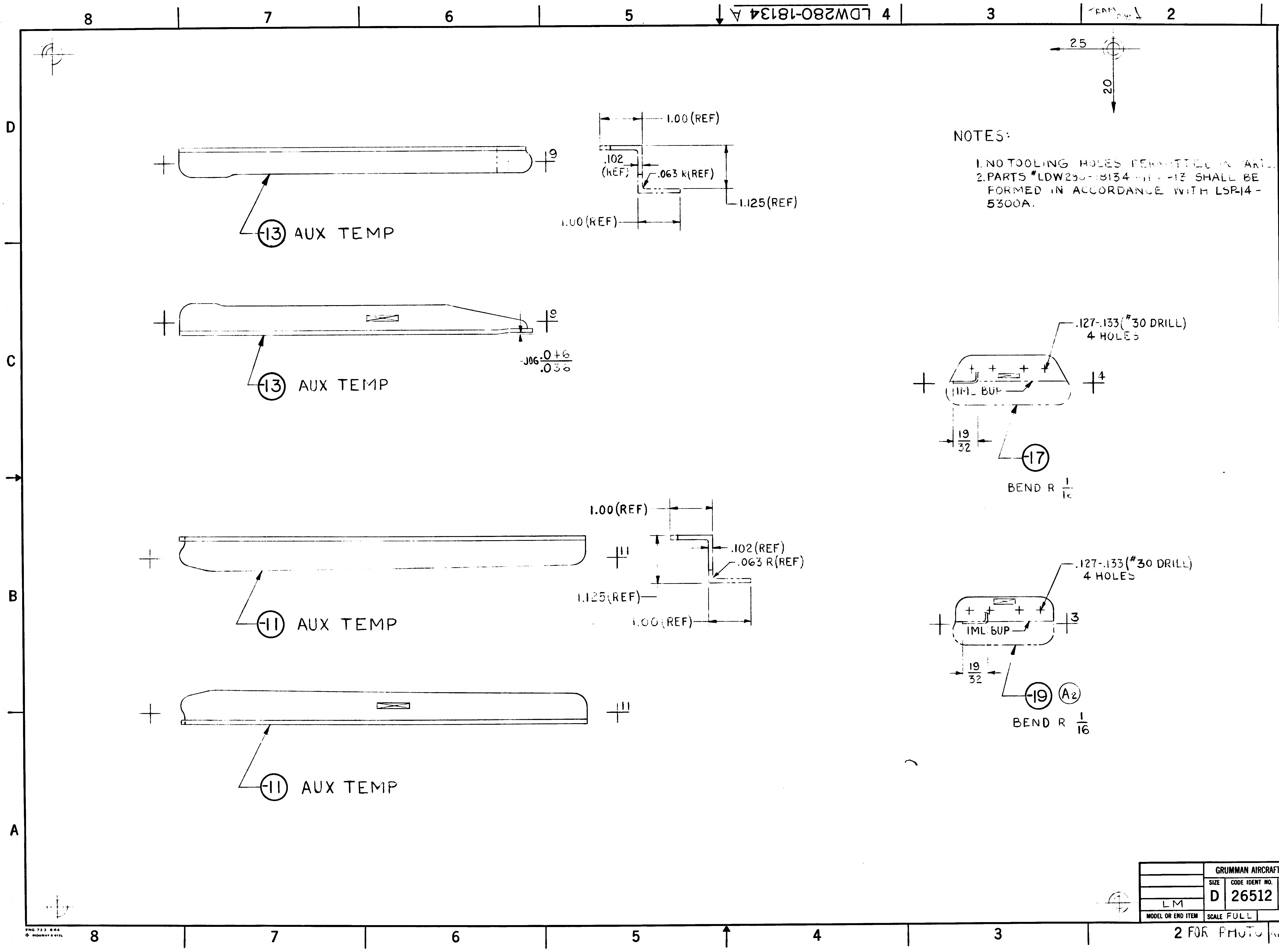
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

4 LDW280-18134 A


-13 AUX TEMP
1.00 (REF)
.102 (REF)
.063 R (REF)
1.125 (REF)
1.00 (REF)
-13 AUX TEMP
.106 $\frac{+.016}{-.030}$
-11 AUX TEMP
1.00 (REF)
.102 (REF)
.063 R (REF)
1.125 (REF)
1.00 (REF)
-11 AUX TEMP
.25
.20
.127-.133 (#30 DRILL)
4 HOLES
IML 6UP
19/32
-17
BEND R 1/16
.127-.133 (#30 DRILL)
4 HOLES
IML 6UP
19/32
-19
A2
BEND R 1/16

NOTES:

1. NO TOOLING HOLES PERMITTED IN PART.
2. PARTS #LDW280-18134 -11 & -13 SHALL BE FORMED IN ACCORDANCE WITH LSP-14-5300A.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

[illegible] - PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18134 A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18134	A
	SCALE FULL		SHEET 3	

2 FOR PHOTO REPRODUCTION1 K2

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE ID'NT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-18134
EO NO. B1
CONTROL INFO NO. LDW280A5881

FROM -11, -13, -17, -19

REMOVE EFFECTIVITY LM-4(34), -5(35), -6(36).

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD19-975

REASON FOR EO: REDESIGNED R.T.G. SUPPORTS (CCA-498) LCD19-975

DESCRIPTION OF EO: FROM -11, -13, -17, -19 REMOVED EFF LM-4(34) -5(35), -6(36)

GAEC EO RELEASE: JK 4/10/7

2

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		LM-5(35)	
		LM-6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			-11, -13 -17, -19	DATE	3/16/67			3/18/67	3/20/67		3-21-67	4-10-67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE ~ DESCENT STAGE ~ SEQ BAY CLOSURE ~ Y UPPER	LDW280-18134	B1

ISSUED BY K. BEACH / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

LDW230-18135A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23702	VERIFICATION TEST (70)	1EA
		LM-6 (36)	1EA
		LM-5 (35)	1EA
		LM-4 (34)	1EA
LM	LDW280-23702	LM-3 (33)	1 EA

PART NO.	GAEC SCH NO.
LDW280-18135-11,-13,-15	512

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH				
SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO A
PRIM NO. 207 LE(001) MP-14 A-11-21-66 EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 .020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	T. FREDA 11-4-66
LAYOUT BY	A.F. MARZELLA
CHECKED BY	EG 11-8-66
GRP LEADER	
VEH. DES. INT.	11/15/66
STRUCTURES	EB 11/16
STRUCTURES	
WEIGHTS	
RELIABILITY	
PROJ ENGR	R M Carlyle 11-16-66
REL GROUP	J Tagliavia 11/19/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE ~ RTG CASK ~
SUPPORT-UPPER INB'D SPLICE

SIZE	CODE IDENT NO.		
B	26512	LDW280-18135	A
SCALE	NONE	SHEET 1.00	OF 4

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00, 3.00						EO A1 Ⓡ	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO EG	LM-3-4-5-6 VER. TEST	NOT	REQD	T. FREDA 11-4-66	RMC Ⓡ 11-16-66	11/9/66

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18135	A
SCALE NONE		SHEET 1.10	

ENG 77.3 5-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18135-15	E	PLATE	AL ALLOY SH	QQA-250/12	7075-T6	.050 x 1 x 3	NONE	88	
		LDW280-18135-13	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 x 1 x 3	NONE	68	
		LDW280-18135-11	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 x 2 x 2	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

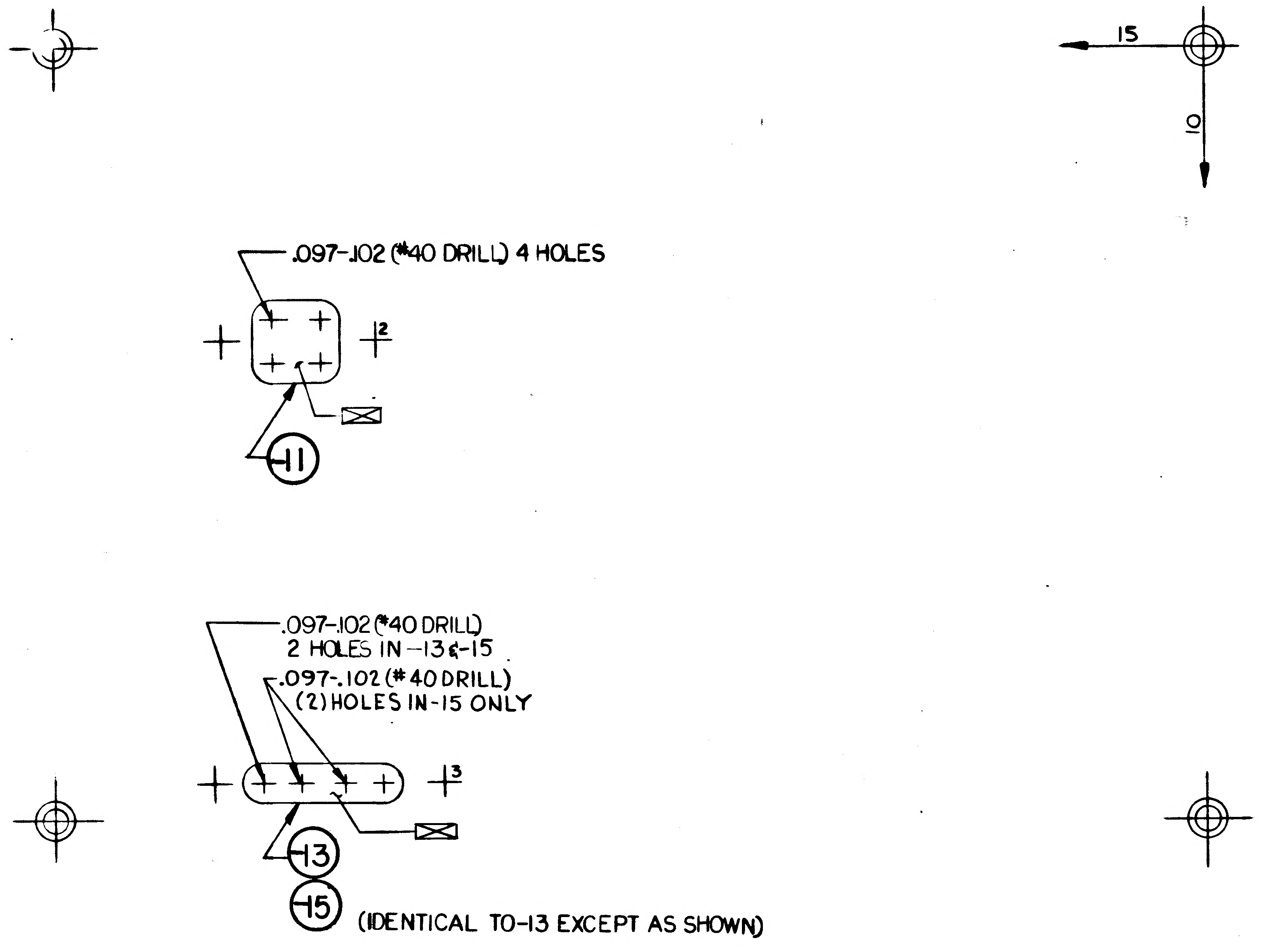
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18135	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE C	CODE IDENT NO. 26512	LDW280-18135	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

1 K2

LDW280-18135 A

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-18135
EO NO. B1
CONTROL INFO NO. LDW280A5878

FROM - 11, -13, -15

REMOVE EFFECTIVITY LM-4(34), -5(35), -6(36)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD19-975

2
C

REASON FOR EO
REDESIGNED R.T.G. SUPPORT
(CCA-498)
LCD 19 975

DESCRIPTION OF EO
FROM-11,-13,-15 REMOVED EFF LM-4(34),
LM-5(35), LM-6(36).

GAEC EO RELEASE
JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-4(34)	
LM		-5(35), -6(36)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			-11 -13 -15

APPROVED BY	JAP			JHS	WJH		RMC		
DATE	3/18/67			3/18/67	3/2/67		3-21-67	4-10-67	
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE ~ DESCENT STAGE ~ R.T.G. CASK ~ SUPPORT - UPPER INBD SPLICE	LDW280-18135	B1

ISSUED BY K. BEACH / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	[illegible] APPD
											REWORK	SCRAP			
A	1	1.00,1.10 200,300						EO A1 D	EO A1 INITIAL DRAWING RELEASE PARTS MADE PER EO	LM-3 THRU LM-6 VERIF. TEST (70)	NOT	REQD	T. FREDA 11-7-66	RMC	11/9/66

CHG APPROVED											
LTR	~~GROUP LDR~~	VEH. DES. INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
A		11/17/66	11/1								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18136	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01 NAS 9-1100

LDW280-18136 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23579	VERIFICATION TEST (70)	1 EA
LM	LDW280-23579	LM-6 (36)	1 EA
LM	LDW280-23579	LM-5 (35)	1 EA
LM	LDW280-23579	LM-4 (34)	1 EA
LM	LDW280-23579	LM-3 (33)	1 EA

PART NO.	GAEC SCH NO.
LDW280-18136-11,-13,-15,-17	512

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO A

PRIM NO. 207 E(001) VMP-14 A-11-21

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 .020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100 LINE ITEM #1 DOCUMENTATION TYPE II

DRAWN BY	T. FREDA 11-7-66	RELIABILITY	
LAYOUT BY	E MARZELLA 11-2-66		
CHECKED BY	H. RODALEWICZ 11-11-66		
~~GRP. LEADER~~			
YEH. DES. INT	11/12/66		
STRUCTURES	11/14/66	PROJ ENGR	(UR) 11-14
STRUCTURES		REL GROUP	
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE ~ SCIENTIFIC EQUIPTMENT END
CLOSURE UPPER SPLICE

SIZE B CODE IDENT NO. 26512 LDW280-18136 A

SCALE NONE SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18136-17	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 x 2 x 3	NONE	88	
								LDW280-18136-15	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 x 2 x 4	NONE	88	
								LDW280-18136-13	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 x 2 x 3	NONE	88	
								LDW280-18136-11	E	PLATE	AL ALLOY SH	QQA-250/12	7075-T6	.050 x 2 x 3	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

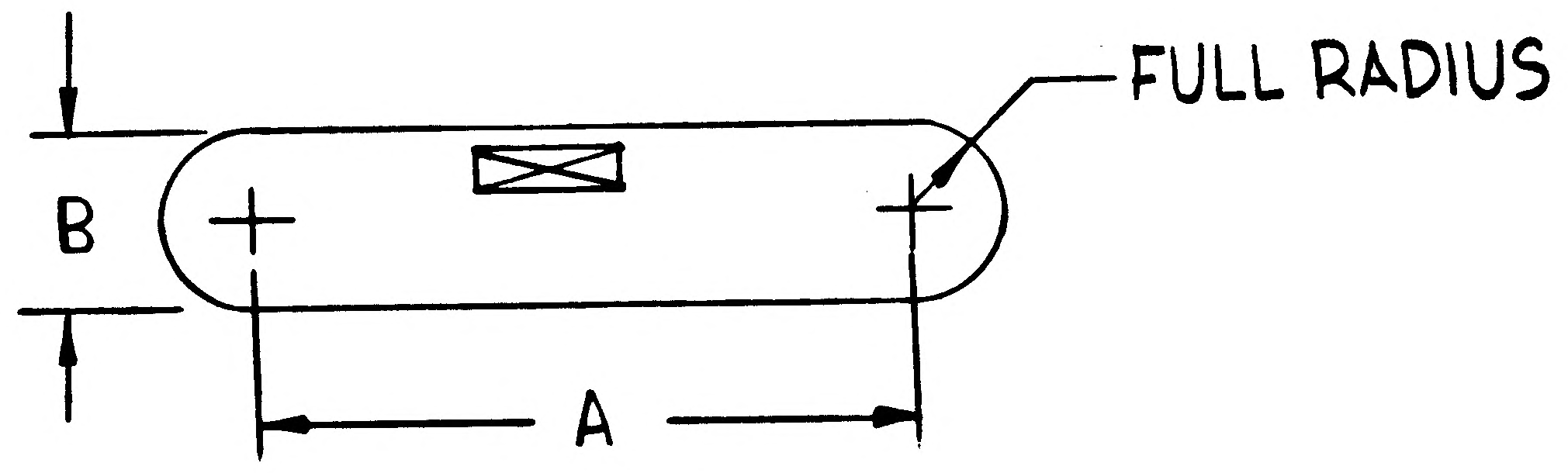
I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18136	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100



DASH NO	A	B
-11	1 3/4	5/8
-13	1 11/16	5/8
-15	2 5/16	5/8
-17	1 23/32	5/8

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	

FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18136	A
SCALE FULL		SHEET 3.00	

ENG 73.11 10-64

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER EMF A

DWG. NO. LDW280-18136
EO NO. B1
CONTROL INFO NO. LDW280A5882

FROM -11, -13, -15, -17

REMOVE EFFECTIVITY LM-4(34), -5(35), -6(36)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 19-975 2

REASON FOR EO: REDESIGNED R.T.G. SUPPORT (CCA-498) LCD 19-975

DESCRIPTION OF EO: FROM -11, -13, -15, -17 REMOVED EFF LM-4(34), -5(35), -6(36)

GAEC EO RELEASE: JK 4/10/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
LM		-5(35), -6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -11 -13 -15 -17

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
				JMS	NM			
DATE	3/18/67			3/18/67	3/20/67		3-21-67	4-12-67
5	VDI							

PRIORITY: C

DRAWING TITLE: PLATE ~ DESCENT STAGE ~ SEQ ~ END CLOSURE ~ UPPER SPLICE

DRAWING NO.: LDW280-18136

EO NO.: B1

ISSUED BY K. BEACH / J. STRAKOSCH X 1153 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52543	LM-3(33)	2 EA
	LDW280-52541	LM-3(33)	
	LDW280-23544	LM-15(45)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
		LM-3(33)	
LM	LDW280-23544	LTA-3(13)	2 EA

PART NO. LDW280-18137-11,-13 CONT

LDW280-18137 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23543	LM-15(45)	2 EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
LM	LDW280-23543	LTA-3(13)	2 EA

PART NO. LDW280-18137-11,-13 CONT

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23542	LM-15(45)	2 EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
		LM-3(33)	
	LDW280-23542	LTA-3(13)	
	LDW280-23541	LM-15(45)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
LM	LDW280-23541	LTA-3(13)	2 EA

PART NO. LDW280-18137-11,-13

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00	3.00				
REV	A	A		A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED ~

LAST DASH NO. USED -13

GRUMMAN REL INFO

PRIM NO. 215 LE/001 MP-14 A-11-21-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

DRAWN BY	P. CARTSELOS 10-27-66	RELIABILITY	
LAYOUT BY	G. BARNES		
CHECKED BY	11-2-66		
VEH DES INT	J. [illegible] 11/15/66		
STRUCTURES	EP 11/16		
STRUCTURES		PROJ ENGR	R. M. Carbee 11-16-66
WEIGHTS		REL GROUP	[illegible] 11/19/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER DESCENT STAGE-LOWER DECK RING REINFORCEMENT

SIZE B | CODE IDENT NO. 26512 | LDW280-18137 | A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A		1.00, 1.10, 2.00, 3.00						EO A1	EO A1 INITIAL DWG RELEASE. PARTS MADE PER EO.	LTA-3, LV-3 THRU LM-15	NOT	REQD	P. CARTSELOS 10-27-66	RMC 11-16-66	11/1/66

LTR	~~GROUP LDR~~	VEH DES INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
A											

CHG APPROVED

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18137	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18137-13	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.080 × 2 × 4	NONE	88	
								LDW280-18137-11	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.080 × 2 × 57	NONE	88	

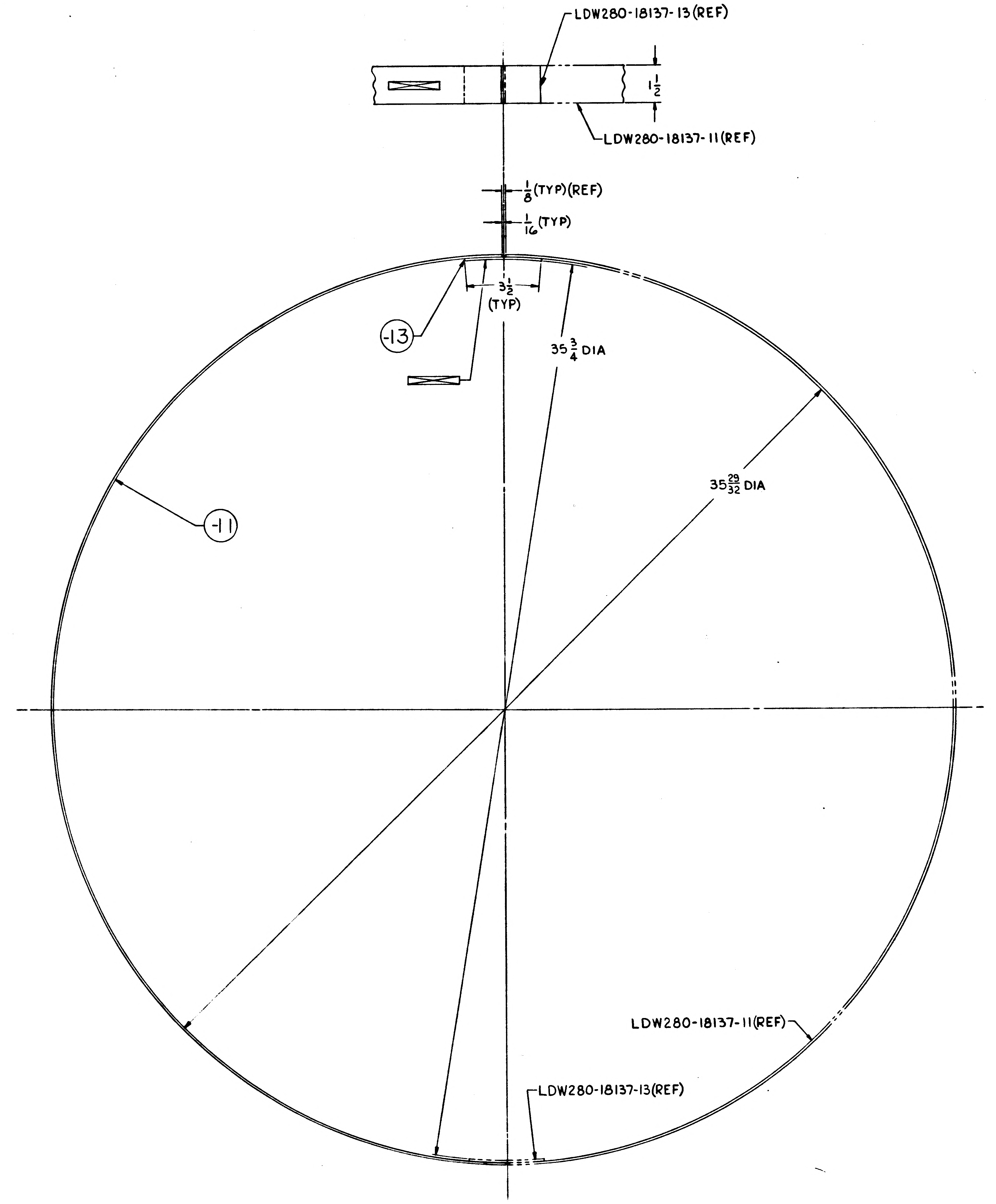
SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18137	A

SCALE NONE
SHEET 2.00



MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
$\sqrt{125}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\sqrt{200}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-18137 A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM MODEL OR END ITEM	SIZE F	CODE IDENT NO. 26512	LDW280-18137	A
	SCALE 1/2			SHEET 3.00

01

NAS 9-1100

H.G.
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-18137 | EO NO. B1
CONTROL INFO NO. LM-2-2953

ON-13 IN F/D REVISE TO AGREE WITH EO.

(REF) VIEW A-A

3 (WAS) 3 1/2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: ERRONEOUS DIMENSIONING

DESCRIPTION OF EO: ON-13 IN F/D. 3 WAS 3 1/2

GAEC EO RELEASE: ✓ FR

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-3 (13)	
		LM-3(33) THRU.	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY								
DATE	11/15				10/29/66	10/29/66	10/31/66	10-29-66
L	VD1	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C2
DRAWING TITLE: DOUBLER~DESCENT STAGE~LWR. DECK RING REINFORCEMENT
DRAWING NO.: LDW280-18137
EO NO.: B1

ISSUED BY LIAISON -T.J.MARTIN -X3604 SECTION V.D.I. GROUP NO. 335 PL 35
EMF

01

NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 547
CONTROL INFO NO. LDW280A-6136

FOR ALL DASH NO.* ON THE FOLLOWING DWGS WHICH HAVE LM-6 EFF ADD LTA-3D|R EFF QTY & N/A TO REMAIN THE SAME AS ON LM-6

DRAWING *	TITLE	CHANGE NO.
LDW280-17787 ✓	SEE DWG	B2
-17792 ✓	↑	B5
-17797 ✓		A2
-17830 ✓		B1
-17841 ✓		A8
-17842 ✓		B1
-17843 ✓		A2
-17844 ✓		A2
-17845 ✓		A2
-17846 ✓		A2
-17850 ✓		B2
-17856 ✓		A2
-17874 ✓		B2
-17882 ✓		B1
-17883 ✓		B3
-17884 ✓		B2
-17885 ✓		B3
-17886 ✓		C4
-17887 ✓		B2
-17891 ✓		A3
-17906 ✓		B1
-17943 ✓		B2
-17948 ✓		B1
-17958 ✓		B2
-17960 ✓		B2
-17973 ✓		A3
-17977 ✓		B1
-17981 ✓		B1
-18064 ✓		B1
-18065 ✓		C1
-18066 ✓		A2
-18067 ✓		A3
-18068 ✓		A2
-18089 ✓		B2
-18090 ✓		B4
-18137 ✓		B2
-18195		C2
LDW280 -18202		B2
LDW280P 18133		A2
LDW 280-54684		A2
LDW 330-52056		B3
	↓	
	SEE DWG.	

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LC019-1242	2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
FAILURE OF LTA-3D IN STATIC TEST	IN M/B FOR * ADDED LTA-3DR EFF	C JK 4/4/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R (96)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	DATE							
✓		NOT	RQD		3/28/67			3/28/67	3/31/67		3-30-67	4/1/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	YDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GRP~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	547

ISSUED BY G. BARNES/J. STRAKOSCH X1153 SECTION YDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1438
CONTROL INFO NO. LDW280B7423

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18088	B3	SEE DWG
-18093	B3	
-18095	B2	
-18110	B1	
-18118	A4	
-18119	A4	
-18137	B3	
-18140	B1	
LDW280-18190	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 53 PG 8 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 5/6/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CON'R UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: ☑ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: ☐ REWORK ☑ SCRAP

APPROVED BY								
DATE	4/4/69			4-2-69	4/8/69		4/9/69	5-5-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1438

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1671
CONTROL INFO NO. LDW280B7728

FOR ✱~
REMOVE~LM-10(40) THRU LM-14(44) EFFECTIVITY FROM··
·······NEXT ASSY'S. NOTED △

	PART NO.✱	DASH NO.✱	NEXT ASSY.△	DWG. TITLE	CHG. NO.
ok	LDW280-17238	-13	✓LDW280-23542 ok	SEE DWG.	A6
		-19	-23543 ok		
		-15	-23544 ok		
	-17239	-13 -17	-23542 ok		B4
			-23543 ok		
			-23544 ok		
	-17240	-11 THRU -17	-23542 ✓		B5
			-23544 ok		
		-11 THRU -15, -17	-23543 ok		
	-17241	-11 THRU -20	-23542 ✓		B5
		-12, -13, -16 THRU -21	-23543 ok		
		-11 THRU -14, -16, -17, -19, 20	-23544 ok		
	-17242	-11 THRU -14	-23542 ✓		B5
		-11, -12, -14	-23543 ok		
		-11, -12, -14, -15	-23544 ok		
	-17243	-17, -18	-23542 ✓		B6
		-18	-23543 ok		
		-11, -18, -19	-23544 ok		
ok	-18137	-11, -13	-23541		B4
			-23543		
			-23544		
ok	-18442	-15	-23542		B7
ok	-18444	-13	-23544		B5
ok	LDW280M17546	-1	-23542	SEE DWG.	C2
			-23543		
			LDW280-23544		
ok	LDW280M17187	-5	LDW280-23544	SEE DWG.	C1
	LDW280-23542	-27-1	LDW280-54509	SEE DWG.	C9

01

NAS 9-1100

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ LCD 3890 PKG. 54 PG. 1 & 8 & 9 (5)

REASON FOR EO: REDESIGN OF LOWER DECK FOR EXTENDED PROP. TANK

DESCRIPTION OF EO: FOR ✱ REMOVED~LM-10(40) THRU LM-14(44) EFFECTIVITY FROM N/A △

GAEC EO RELEASE: ✓ 9/18/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40) THRU LM-14(44)		

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	9-16-69			9/9/69	9/12/69		9/16/69
	VDI						

PRIORITY: C

DRAWING TITLE: NOTED ABOVE (SEE DWG)

DRAWING NO.: LEO280

EO NO.: 1671

10-10-69
ISSUED BY GWGreen / John Lang x86047

SECTION VEH. DES. INT.

GROUP NO. 335 PL 25

LDW280-18140 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51642	LM-1(31)	1

PART NO. LDW 280-18140 -17, 13 & -15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51642	LM-15(45) THRU	2
LM	LDW280-51642	LM-1 (31)	2

PART NO. LDW 280-18140 -23 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51642	LM-15(45) THRU	1 EA
LM	LDW280-51642	LM-2(32)	1 EA

PART NO. LDW 280-18140-21, 27 & -29 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51642	LM-15(45)	1 EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
		LM-3(33)	
		LM-2(32)	
LM	LDW280-51642	LM-1(31)	1 EA

PART NO. LDW 280-18140 -11 & -25 — GAEC SCH NO. 52

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	110	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL INFO (A)		
		PRIM NO.	JK001	EMF
LAST DASH NO. USED	-29	220	ME-16A-4/16	9

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	N.A. CHRISTINA 11/15/66	THERMO	B 11/16/66
LAYOUT BY	N.A. CHRISTINA 11/15/66	RELIABILITY	
CHECKED BY			
GROUP LEADER	J. Stragliconti 11/15/66		
VDI	J. Pusateri 11/16/66		
STRUCTURES	WJH 11/17/66	PROJ ENGR	11-17
STRUCTURES		REL GROUP	11/17/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD
D/S QUAD III-LWR-METEOROID PROTECTION

SIZE	CODE IDENT NO.		
B	26512	LDW280-18140	A
SCALE	NONE	SHEET 1.00 OF 4	

C.D.R. 11/4/66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS: REWORK	DISPOSITION OF EXISTING PARTS: SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
									RETRACED SHEET 3.00 NO CHG LAST REV NO CHG, LOFTED DWG WAS DIM DWG, "K" SIZE WAS "J" SIZE - W. DIONISIO 8-21-68						
A	1	1.00, 1.10 2.00, 3.00	1D						INC. LEO280-406. ADDED SH. 1.10	LM-1 THRU LM-15			W. DIONISIO 8-21-68		
	2	1.00, 2.00 3.00	2D, 3A 6A, 6C, 7C						INC E.O. A2						
	3	1.00, 2.00, 3.00	6A						INC. E.O A3						
	4	1.00, 2.00 3.00	4C 5C						INC. E.O. A4						
	5	1.00, 1.10							INC. E.O. A5	LM-2 THRU LM-15					
	6	3.00					✓		REF LEO280-406 ADDED NOTE ✱ "NOT APPLICABLE" REPLACED BY LPC280-19 D.J. Aston	NOT REQD	NOT	REQD			

CHG APPROVED: LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO
A	BST 3/27	3/27/69		WJM 3/28/69			MAR 4/10/69

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18140	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

CL	QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C									LDW280-18140-29	E	SHIELD	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 x 10 x 14	NONE	88	5C
C									-27	E	SHIELD				.004 x 10 x 17			4C
C									-23	E	PLATE				.004 x 4 x 4			6C
C									-21	E	SHIELD				.004 x 22 x 34			2D
C									-25	E	SHIELD				.004 x 17 x 29			6A
C									-17	E	SHIELD				.004 x 22 x 34			2D
C									-15	E	END PLATE				.004 x 7 x 9			6C
C									-13	E	END PLATE				.004 x 6 x 9			7C
C									LDW280-18140-11	E	SHIELD-CORRUGATED	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 x 13 x 61	NONE	88	3A
/////																		

C.L. = CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18140

A

SCALE NONE

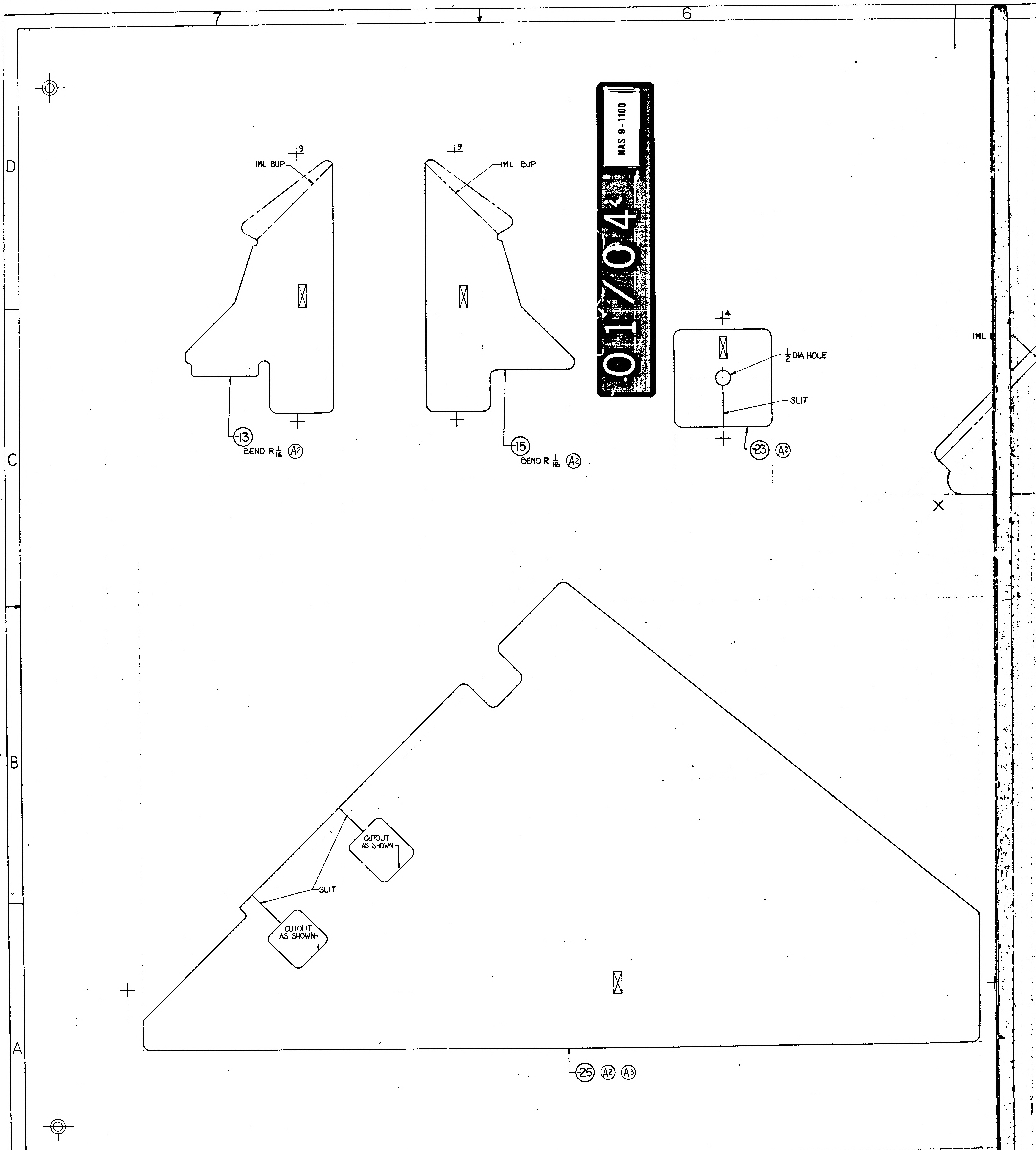
SHEET 2.00

ENG 77.2 7-65

01

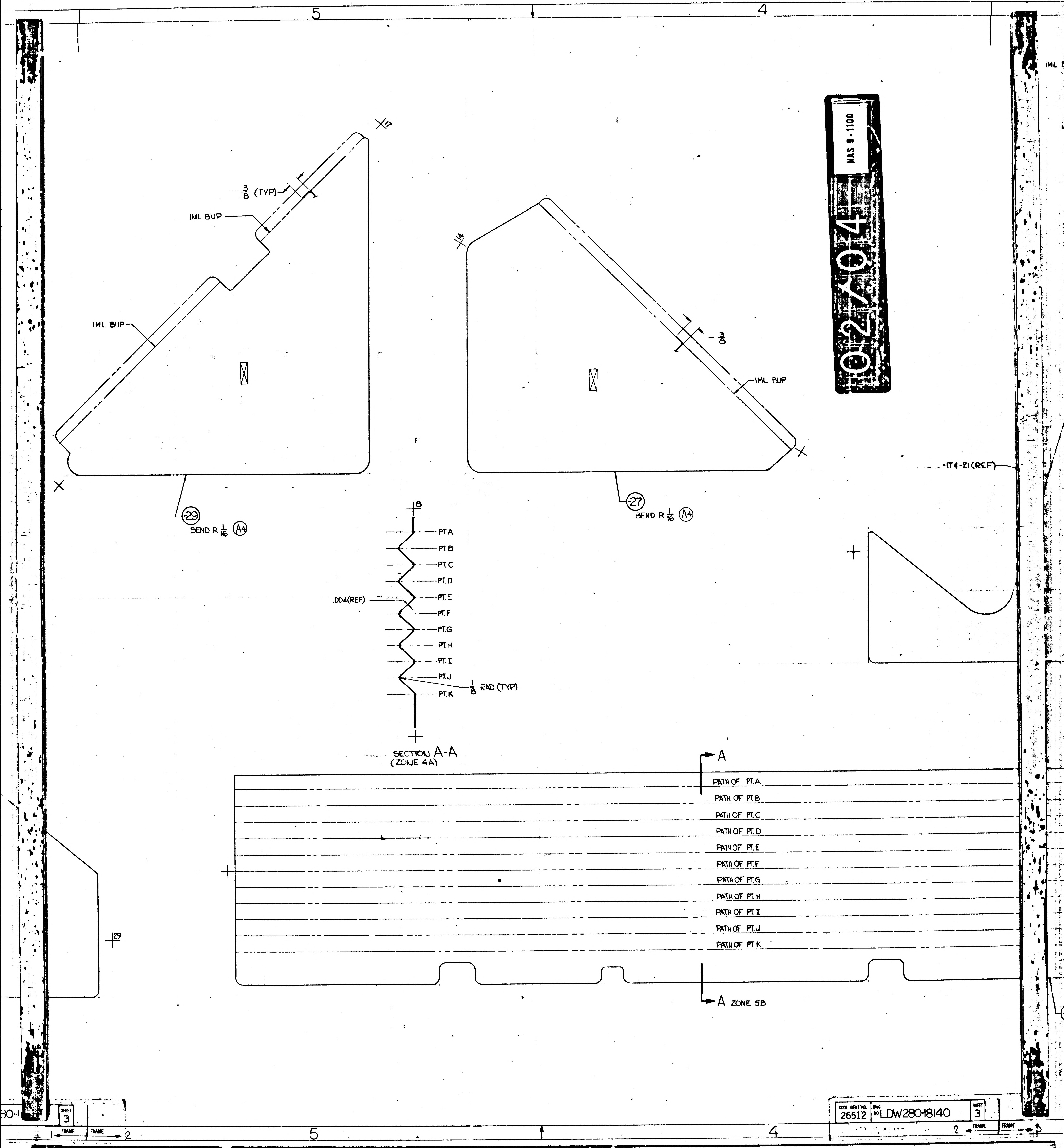
NAS 9-1100

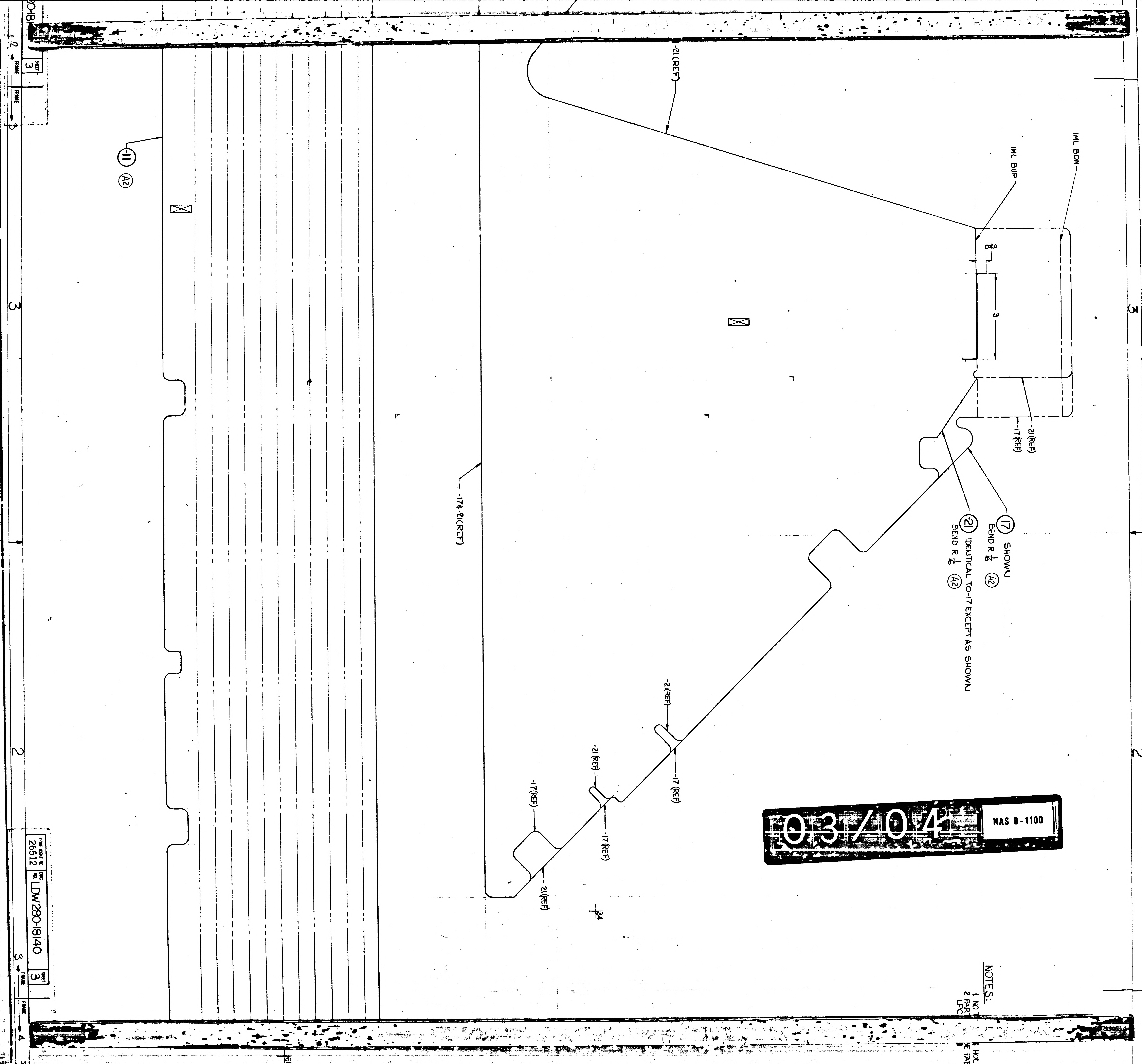
01/04 NAS 9-1100


7
6
D
C
B
A
IML BUP
9
IML BUP
9
-13
BEND R 1/16 A2
-15
BEND R 1/16 A2
4
1/2 DIA HOLE
SLIT
-23 A2
IML
CUTOUT AS SHOWN
SLIT
CUTOUT AS SHOWN
-25 A2 A3
7
6

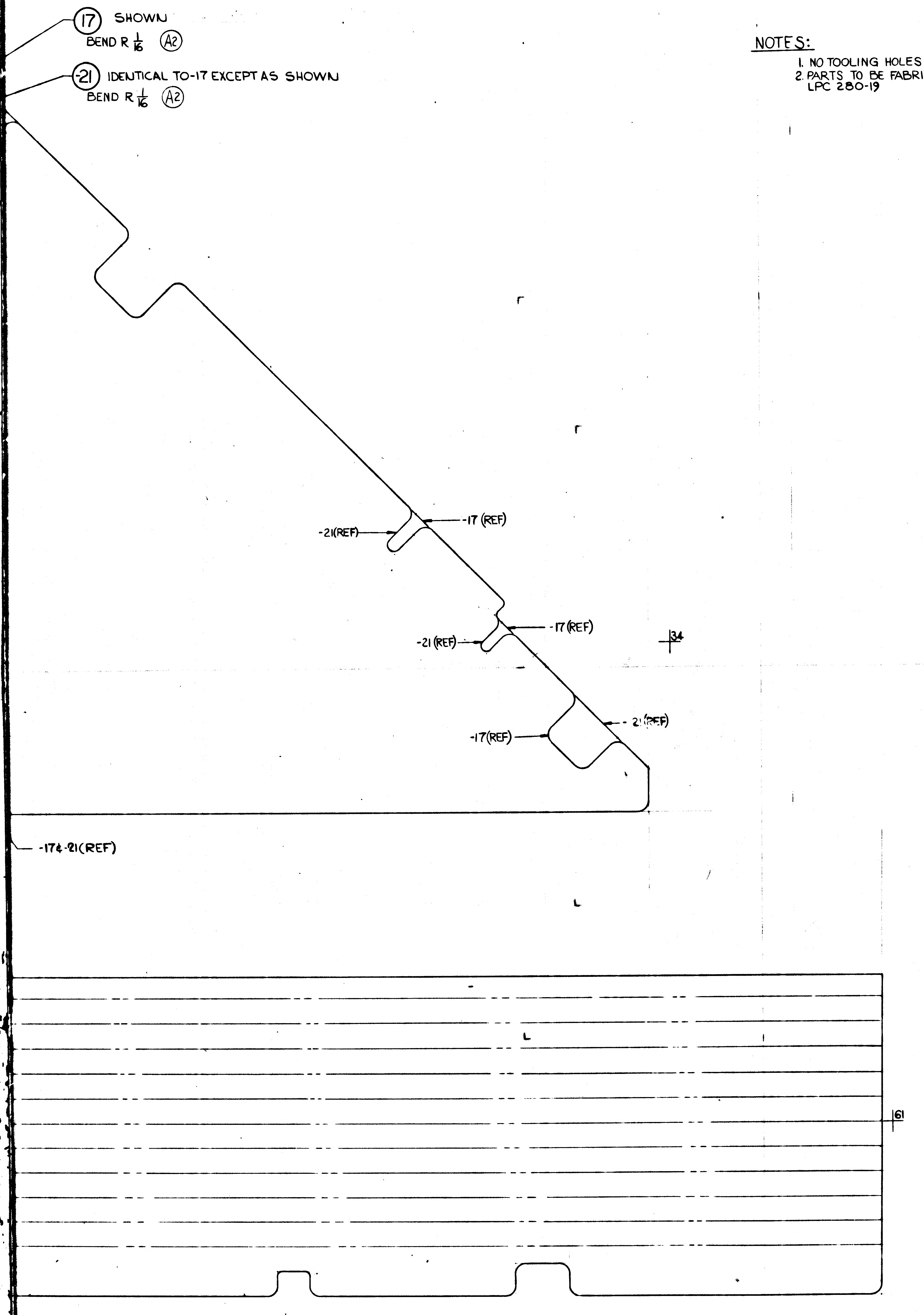
CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18140	3

1 ← FRAME | FRAME → 2


5
4
3/8 (TYP)
IML BUP
IML BUP
-29
BEND R 1/16 (A4)
-27
BEND R 1/16 (A4)
- 3/8
IML BUP
02/04
NAS 9-1100
-174-21 (REF)
8
PT.A
PT.B
PT.C
PT.D
.004(REF)
PT.E
PT.F
PT.G
PT.H
PT.I
PT.J
1/8 RAD.(TYP)
PT.K
SECTION A-A
(ZONE 4A)
A
PATH OF PT.A
PATH OF PT.B
PATH OF PT.C
PATH OF PT.D
PATH OF PT.E
PATH OF PT.F
PATH OF PT.G
PATH OF PT.H
PATH OF PT.I
PATH OF PT.J
PATH OF PT.K
A ZONE 5B
29
SHEET 3
FRAME 1
FRAME 2
CODE IDENT NO 26512
DWG NO LDW280-18140
SHEET 3
FRAME 2
FRAME 3


-21(REF)
IML BDN
IML BUP
3/8
3
-11
A2
-21(REF)
-17(REF)
17 SHOWN
BEND R 1/16 A2
-21 IDENTICAL TO -17 EXCEPT AS SHOWN
BEND R 1/16 A2
-17 & -21(REF)
-21(REF)
-17(REF)
-21(REF)
-17(REF)
-17(REF)
-21(REF)
3
2
CODE IDENT NO 26512
DWG NO LDW280-18140
SHEET 3
FRAME
NOTES:

03/04 NAS 9-1100



(17) SHOWN
BEND R 1/16 (A2)
(-21) IDENTICAL TO -17 EXCEPT AS SHOWN
BEND R 1/16 (A2)
-21(REF)
-17 (REF)
-21 (REF)
-17 (REF)
-17(REF)
-21(REF)
-17 & -21 (REF)
61
34

100
35

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS
2. PARTS TO BE FABRICATED IN ACCORDANCE WITH LPC 280-19

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 40 X 11C

PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (42 X 118)= 34.5 SQ FT
1/4 SIZE SHEET AREA (1/4 OF FULL)= 9 SQ FT

04704
NAS 9-1100

D
C
B LDW280-18140 A
A LDW280-18140 A

CODE IDENT NO. 26512	DWG NO. LDW280-18140	SHEET 3

3 ← FRAME
FRAME → 4

SUPERSEDES LDW280-18140 "NC" 11-17-66

FOR PHOTO REPRODUCTION

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
SIZE K	CODE IDENT NO. 26512	LDW280-18140	A
SCALE FULL		SHEET 3.00	

K2
4FR

2
1
2

C *

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18140
EO NO. A5
CONTROL INFO NO. LM '3003

THIS IS A REV OF EO A4
IN EFF BLK - REVISE AS FOLLOWS: LM2 (32) THRU 15(45) WAS LM1(31) THRU 15(45
IN DESCRIPTION OF EO: FOR -13 & -15 REMOVED LM2 (32) THRU 15(45) EFF
WAS
RESTRICTED -13 & -15 TO LM1(31)

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: INCORRECT EFFECTIVITY ON E.O. A4

DESCRIPTION OF EO: (REF EO A4) REVISED EFF BLK TO: LM2 THRU 15 FOR -13 & -15 REM. LM2(32) THRU 15(45) EFF WAS RESTRICTED -13 & -15 TO LM1(31)

GAEC EO RELEASE: JK 5 C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2(32) THRU 15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-13 -15

APPROVED BY	WT			~		CH	RHC	GD
DATE	7/14/67			~		3-14-67	3-16-67	3/14/67
5	YDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SHIELD D/S - QUAD III LWR MET. PROT.
DRAWING NO.: LDW280-18140
EO NO.: A5

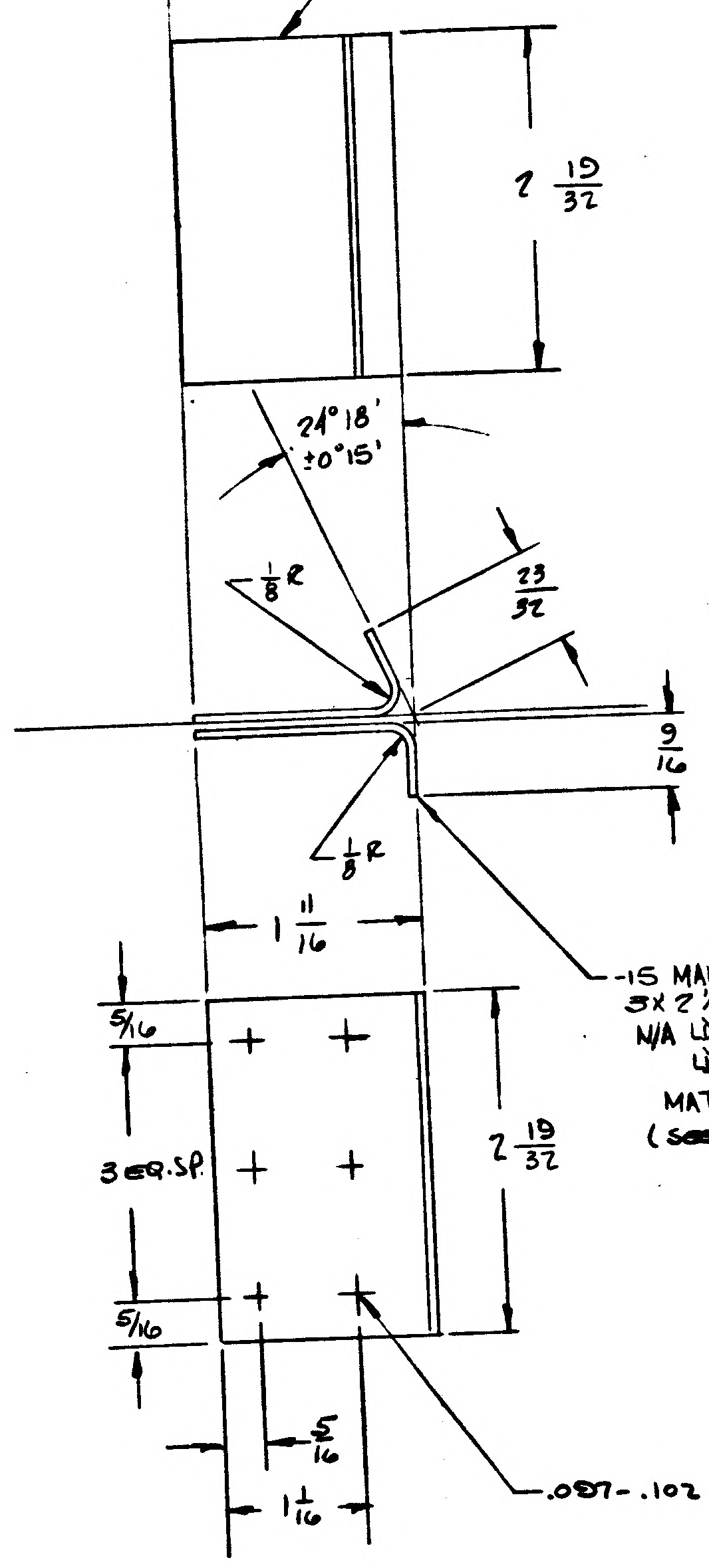
ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

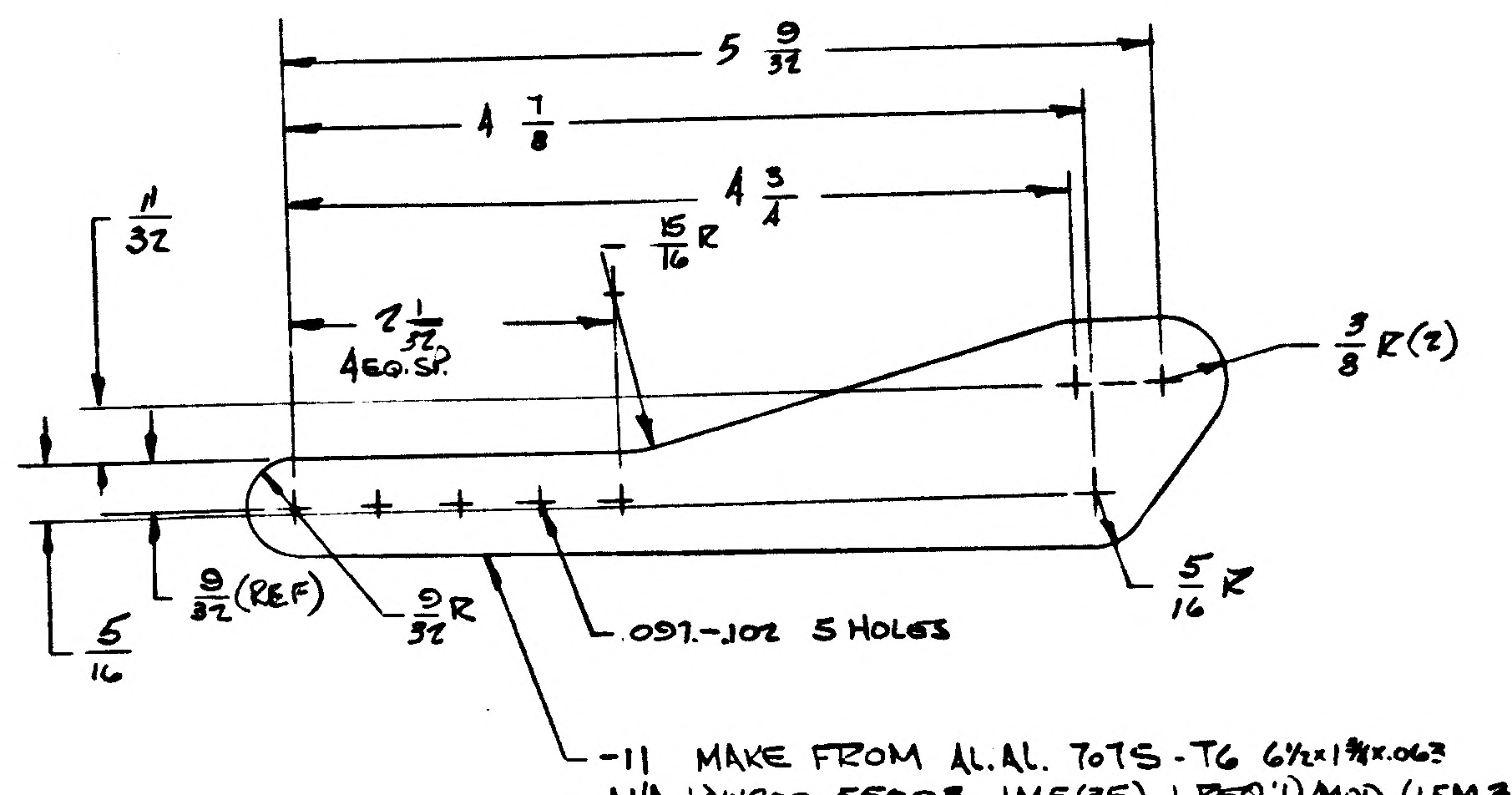
DWG. NO. LDW280-12140 | EO NO. A1
CONTROL INFO NO. LDW280B6931

-13 MAKE FROM AL.AL.7075-0 H.T.-T6
3×2 3/4×.063
N/A LDW280-53159 LM6(36) 1 REQ'D/MOD
LDW200-55003 LM5(35) 1 REQ'D/MOD (LFM357)
MAT'L SPEC. QQ-A-250/12
(SEE NOTE #1)



-15 MAKE FROM AL.AL.7075-0 H.T.-T6
3×2 1/2×.063
N/A LDW200-55003 LM5(35) 1 REQ'D/MOD (LFM357)
LDW280-53159 LM6(36) 1 REQ'D/MOD
MAT'L SPEC QQ-A-250/12
(SEE NOTE #1)

.087-.102 6 HOLES



.087-.102 5 HOLES

-11 MAKE FROM AL.AL. 7075-T6 6 1/2×1 3/4×.063
N/A LDW200-55005 LM5(35) 1 REQ'D/MOD (LFM357)
LDW280-53159 LM6(36) 1 REQ'D/MOD
MAT'L SPEC QQ-A-250/12
(SEE NOTE #1)

NOTE #1 PARTS SHALL RECEIVE AN EPOXY PRIMER COATING PER MIL-P-23377 IN ACCORDANCE WITH LPC 280-53

H.T. -T73 MIL-H-6088
PROCESS ANODIZE (88) LSP-14-9030
I & T = E
TOL. ±1/32 ±.010 ±1/2°
PRIMARY Nº 215
CONTRACT Nº NAS 9-1100
DOCUMENTATION TYPE II
WORK PKG FUNCTION Nº 110

*DWG NOT MADE

DETAIL SPEC REQ | CL II ENGRG CHG | CL I ENGRG CHG ✓ LCD 3775 PKG # 10

(5)

REASON FOR EO: STRESS CORROSION K.H.

DESCRIPTION OF EO: E.O. A. INITIAL DWG RELEASE PARTS

GAEC EO RELEASE: JK 1/29

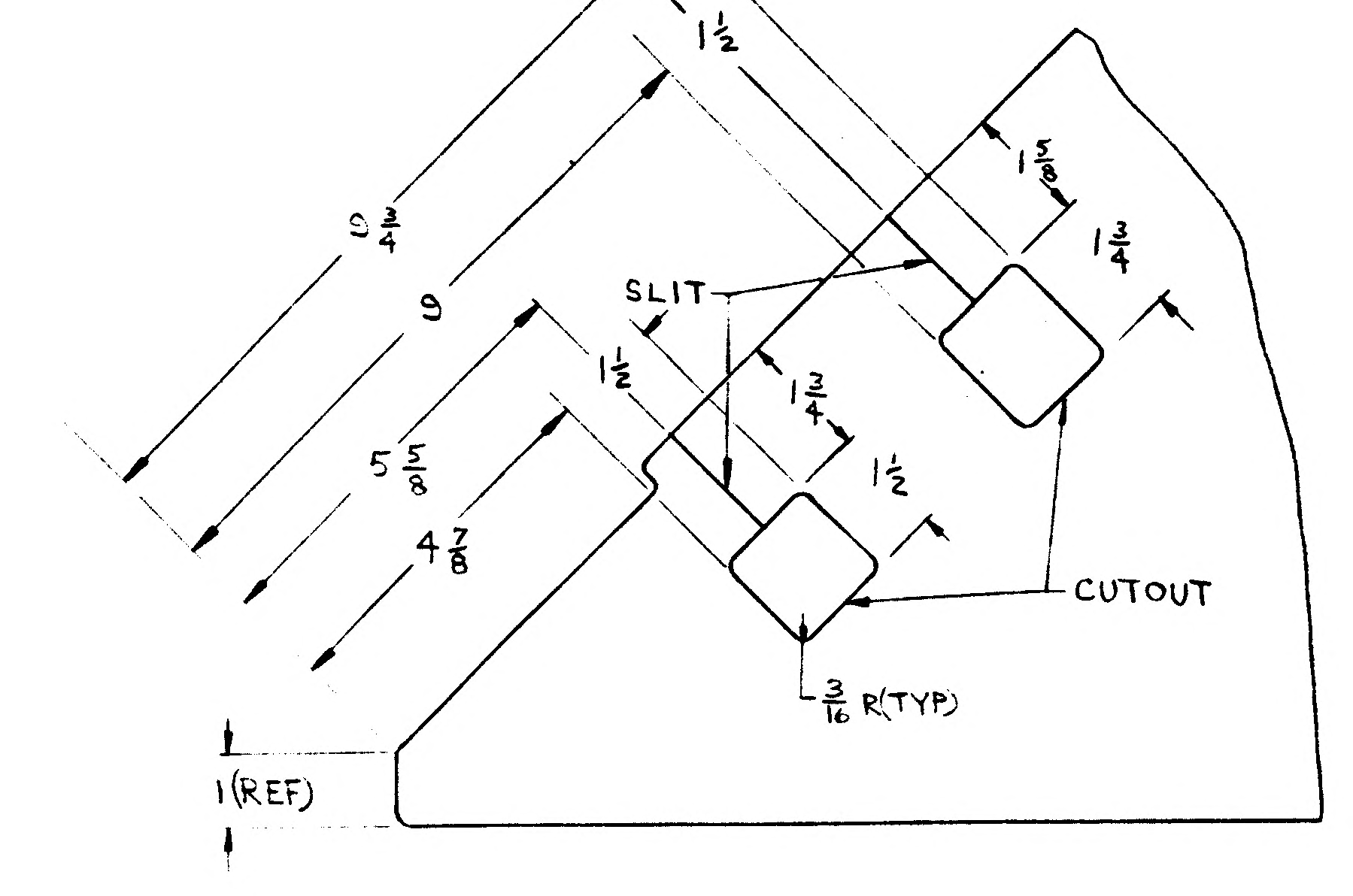
MODEL	E.T. ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 367	LM5(35)	
		LM6(36)	

DRAWING CHANGE REQD: * REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK | SCRAP
APPROVED BY
DATE 1/27/69 VD1 | SUPPORT | RELIAB. GROUP | GROUP LEADER 1/27/69 | STRESS GROUP CL 1/27/69 | LIAISON ENGRG | PROJ ENGRG 1/29/69 | 1-28

PRIORITY C
DRAWING TITLE: PLATE A/S-M/S -Y15.00 -Z31.00 BOTTOM THERMAL SHIELD
DRAWING NO. LDW280-12140
EO NO. A1

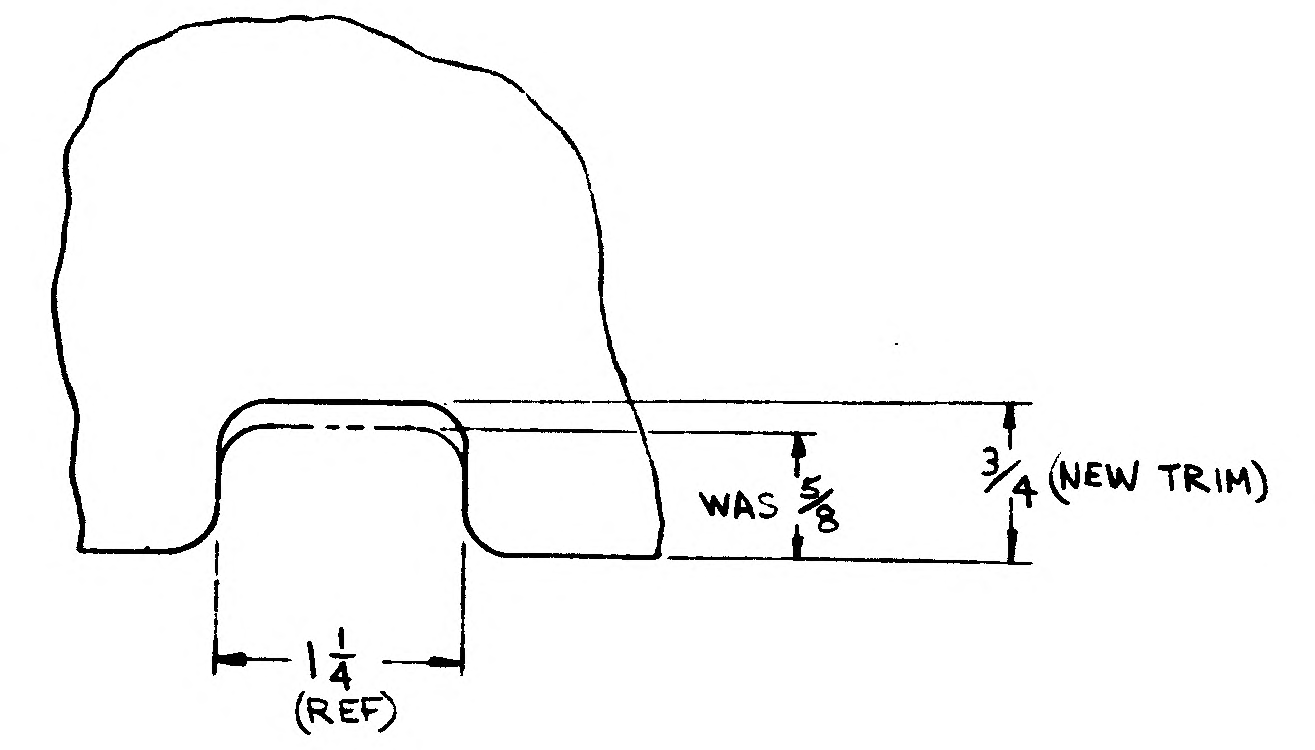
1-28-69 ISSUED BY P. WEISSLITZ X26048 SECTION VD1 GROUP NO. 335 PL 25

NAS 9-1100



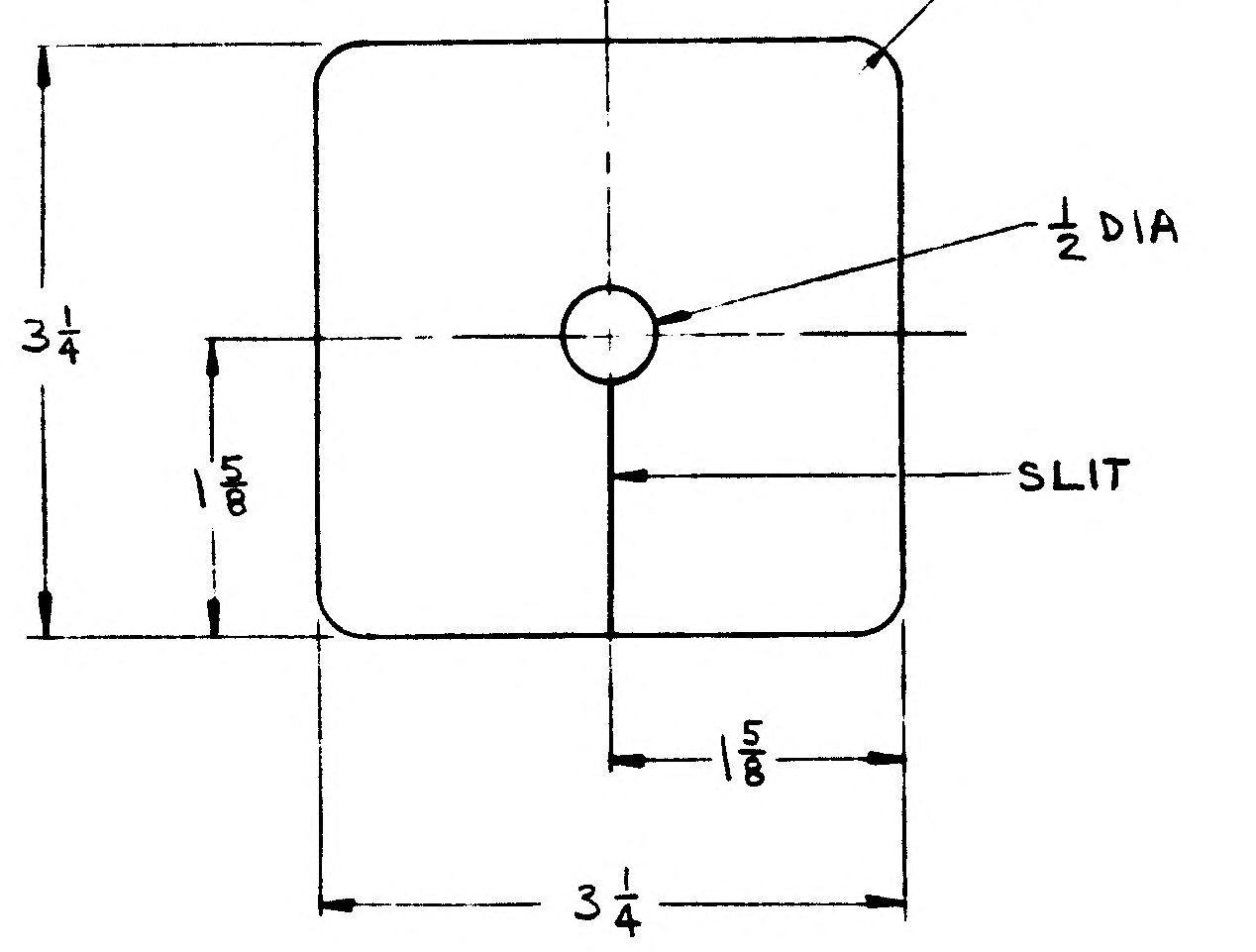
1½
1⅜
1¾
SLIT
1¾
1½
1½
8¾
9
5 5/16
4⅞
CUTOUT
3/16 R(TYP)
1(REF)

LDW280-18140-19 REWORK



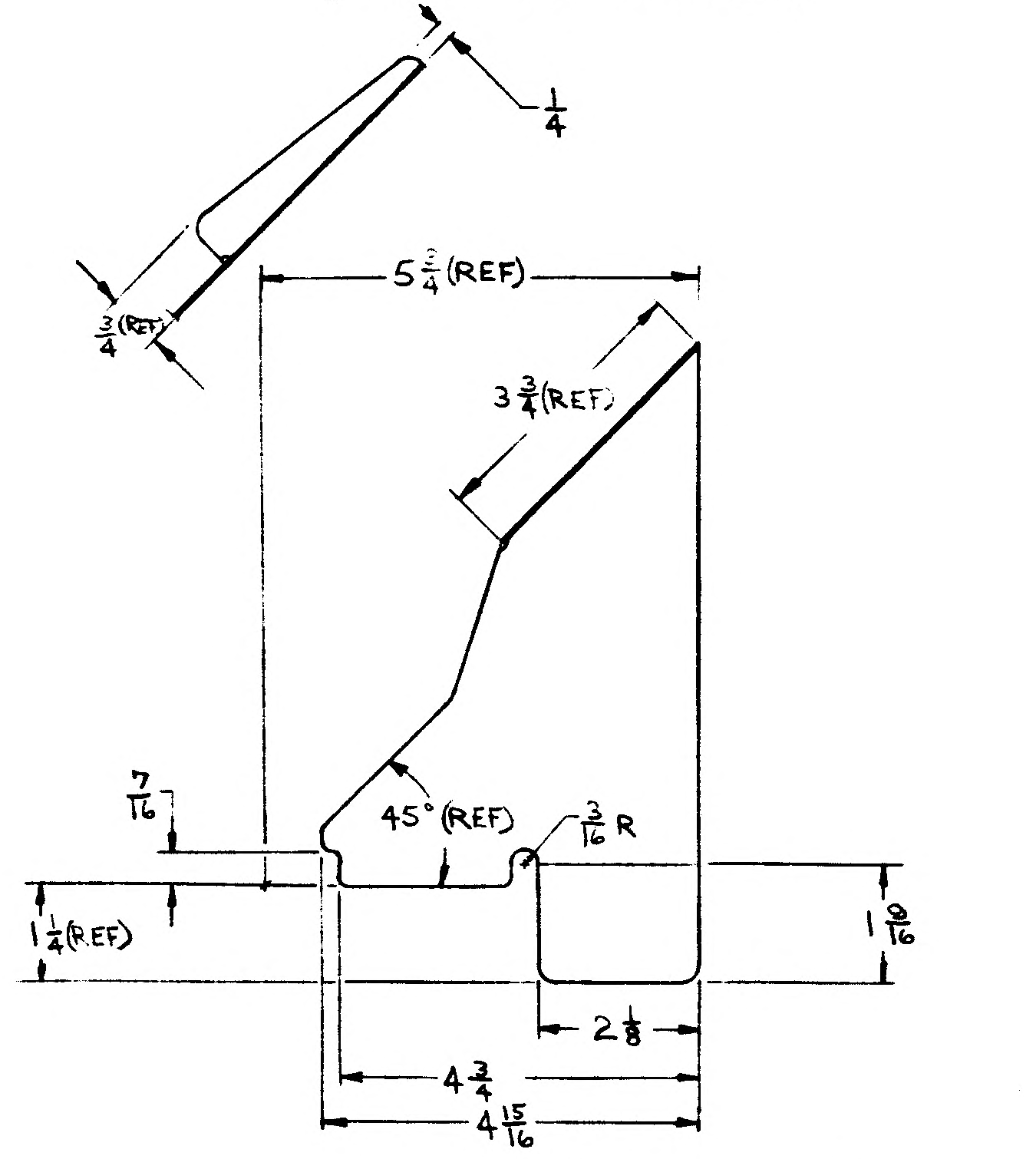
WAS ⅝
¾ (NEW TRIM)
1¼ (REF)

LDW280-18140-11 REWORK
(CUTOUT TYP 4 PLACES)



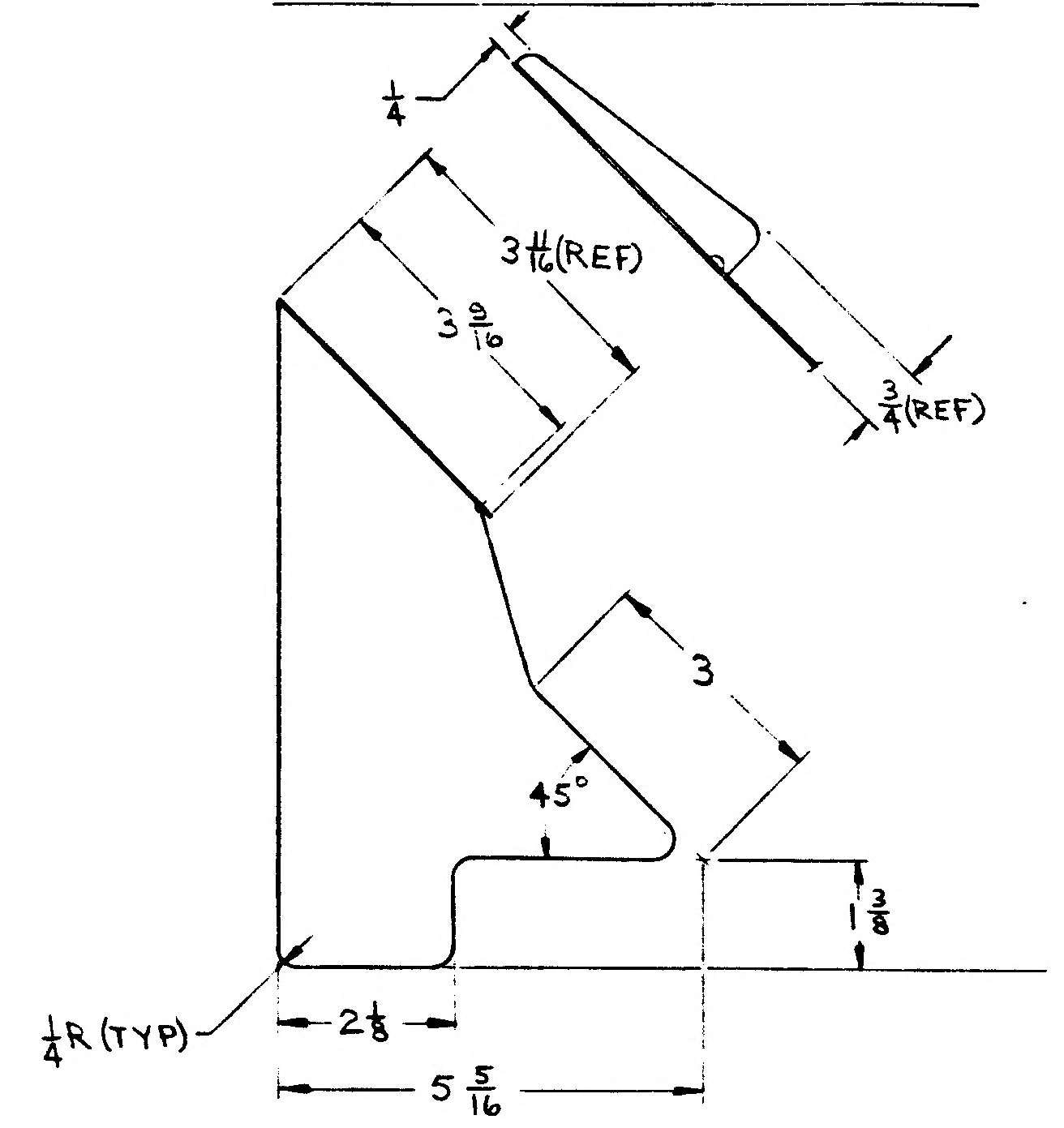
¼ R(TYP)
½ DIA
SLIT
3¼
1⅝
1⅝
3¼

CREATE LDW280-18140-23
PLATE
MATL AL ALLOY SH
GOVT SPEC QQ-A-250/4
COML SPEC 2024-T81
STOCK SIZE .004 × 3¼ × 3¾
FINISH NO 88
PROCESS SYM NONE



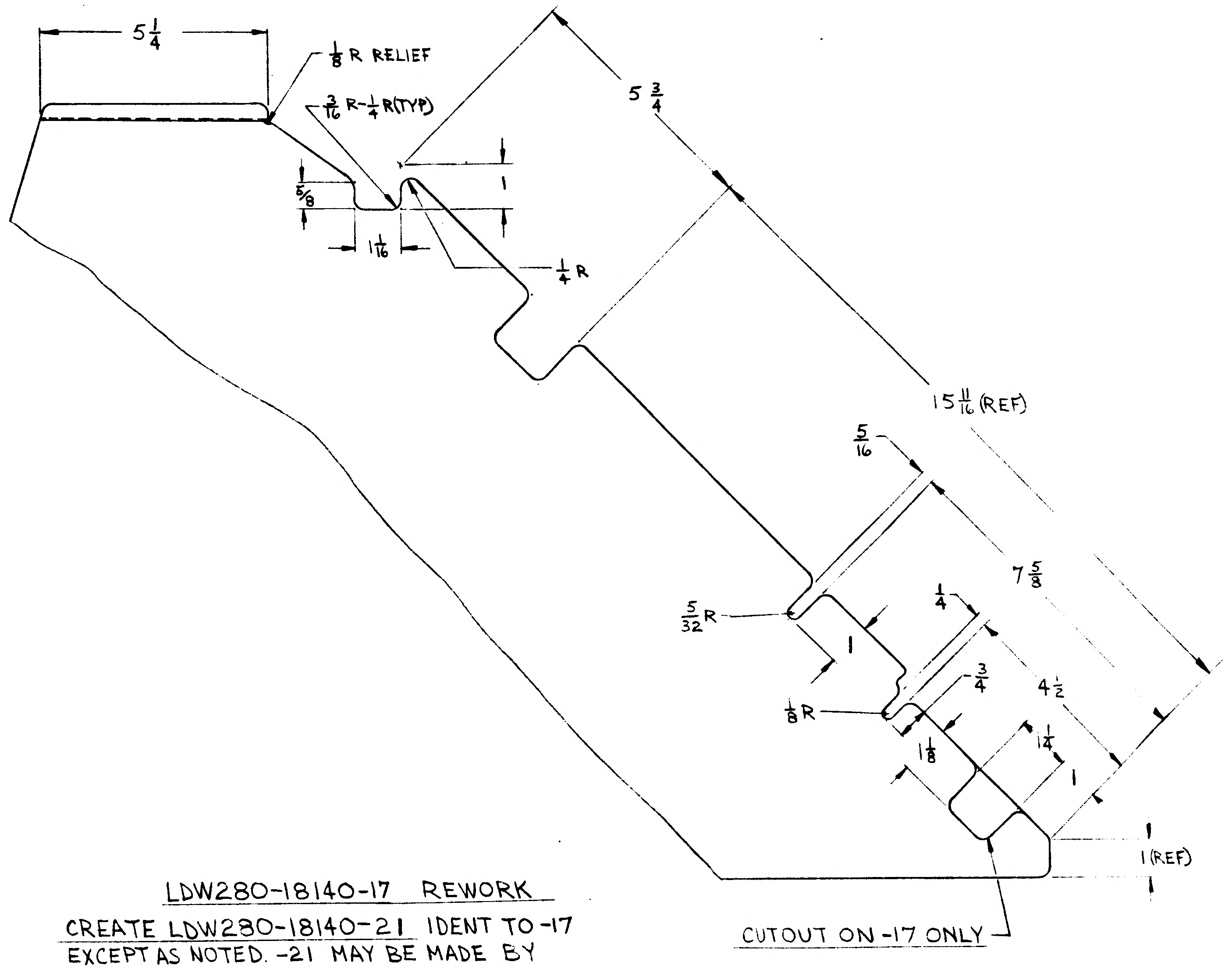
¼
¾(REF)
5¾(REF)
3¾(REF)
7/16
45°(REF)
3/16 R
1¼(REF)
1 9/16
4¾
2⅛
4 15/16

LDW280-18140-13 REWORK



¼
3 11/16(REF)
3 3/16
¾(REF)
3
45°
1⅜
¼R (TYP)
2⅛
5 5/16

LDW280-18140-15 REWORK



5¼
⅛ R RELIEF
3/16 R-¼ R(TYP)
5¾
1
⅝
1 1/16
¼ R
15 11/16 (REF)
5/16
7⅝
5/32 R
1
¼
¾
⅛ R
4½
1⅛
1¼
1
1(REF)
CUTOUT ON -17 ONLY

LDW280-18140-17 REWORK
CREATE LDW280-18140-21 IDENT TO -17
EXCEPT AS NOTED. -21 MAY BE MADE BY
REWORKING -17

1. REWORK LDW280-18140-11, -13, -15, -17 & -19
2. REMOVE LDW280-18140-17 FROM LM-2(32) THRU LM-15(45) EFF.
3. CREATE LDW280-18140-21 PART MAY BE MADE BY REWORKING -17
   LDW280-18140-21 EFF ON LM-2(32) THRU LM-15(45) (1 REQD/MOD) N/A LDW280-51642
4. CREATE LDW280-18140-23 EFF LM-1(31) THRU LM-15(45) (2 REQD/MOD) N/A LDW280-51642

01 NAS 9-1100

Ⓐ

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG	CONTROL INFO NO. LDW 280 A-[illegible]
REASON FOR EO TO PROVIDE ADEQUATE CLEARANCE FOR EXISTING STRUCTURE & TO AGREE WITH FABRICATED PARTS			DESCRIPTION OF EO CREATED -21 EFF LM-2(32) THRU LM-15(45) ([illegible]) & -23 EFF [illegible](31) THRU LM-15(45) ([illegible]) N/A LDW280-51642 REWORKED -11, -13, -15, -17 & -19 REMOVED LM-2(32) THRU LM-15(45) EFF FROM -17		GRUMMAN EO RELEASE

MODEL	EFFECTIVITY PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU LM-15(45)	

DRAWING REVISION REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	BY / DATE	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR
✓		✓		1/20/67 VDI			1/20/67	1/20/67		1/20/67

PRIORITY	DRAWING TITLE	ENGINEERING ORDER DRAWING NO.	EO NO.
C	SHIELD D/S-QUAD III-LWR-METEOROID PROTECTION	LDW 280-18140	

V.A. CHRISTINA ISSUED BY J. STRAKOSCH	SECTION VDI	X1332	GROUP NO. 335	PL 35	CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32.3 REV 3-65

A

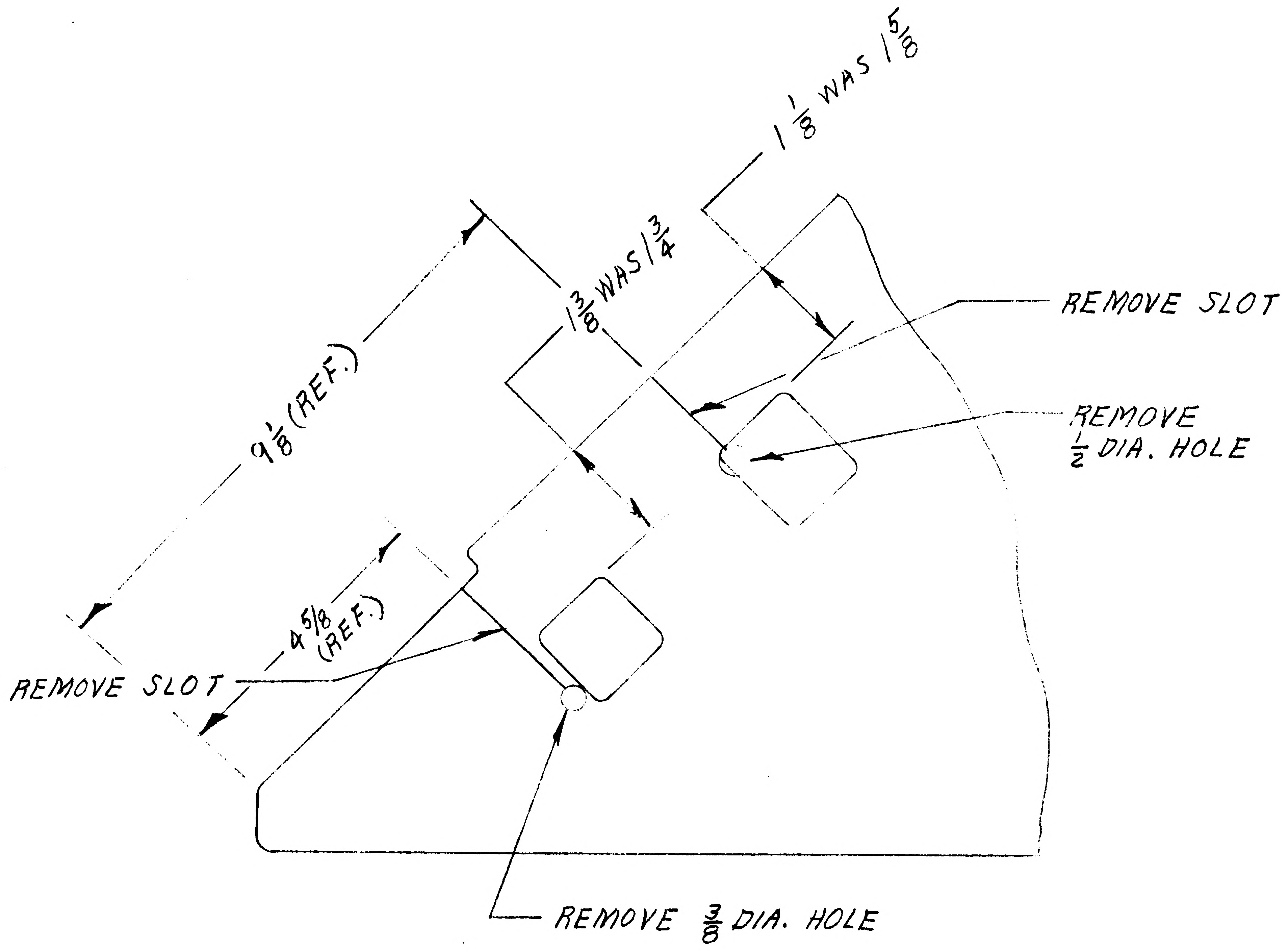
NG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18140
EO NO. A
CONTROL INFO NO. LM-5-11740

REMOVE -19
ADD -25, IDENTICAL TO -19 EXCEPT AS SHOWN
NEXT ASSY. LDW280-51642, 1 REQD./MOD, I & T=E

RELEASED BY LIAISON



$1\frac{1}{8}$ WAS $1\frac{5}{16}$
$1\frac{3}{8}$ WAS $1\frac{3}{4}$
$9\frac{1}{8}$ (REF.)
$4\frac{5}{8}$ (REF.)
REMOVE SLOT
REMOVE $\frac{1}{2}$ DIA. HOLE
REMOVE SLOT
REMOVE $\frac{3}{8}$ DIA. HOLE

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NAS 9-1100

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
-19 RWK. ON E.O. AZ DOES NOT WORK	REMOVED -19 & ADDED -25	

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LM		LM-1 (31)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓			-19	APPROVED BY	WT			~		14	RMC	
				DATE	1/30/67			~	1/30/67	1-30-67	2-3-67	
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

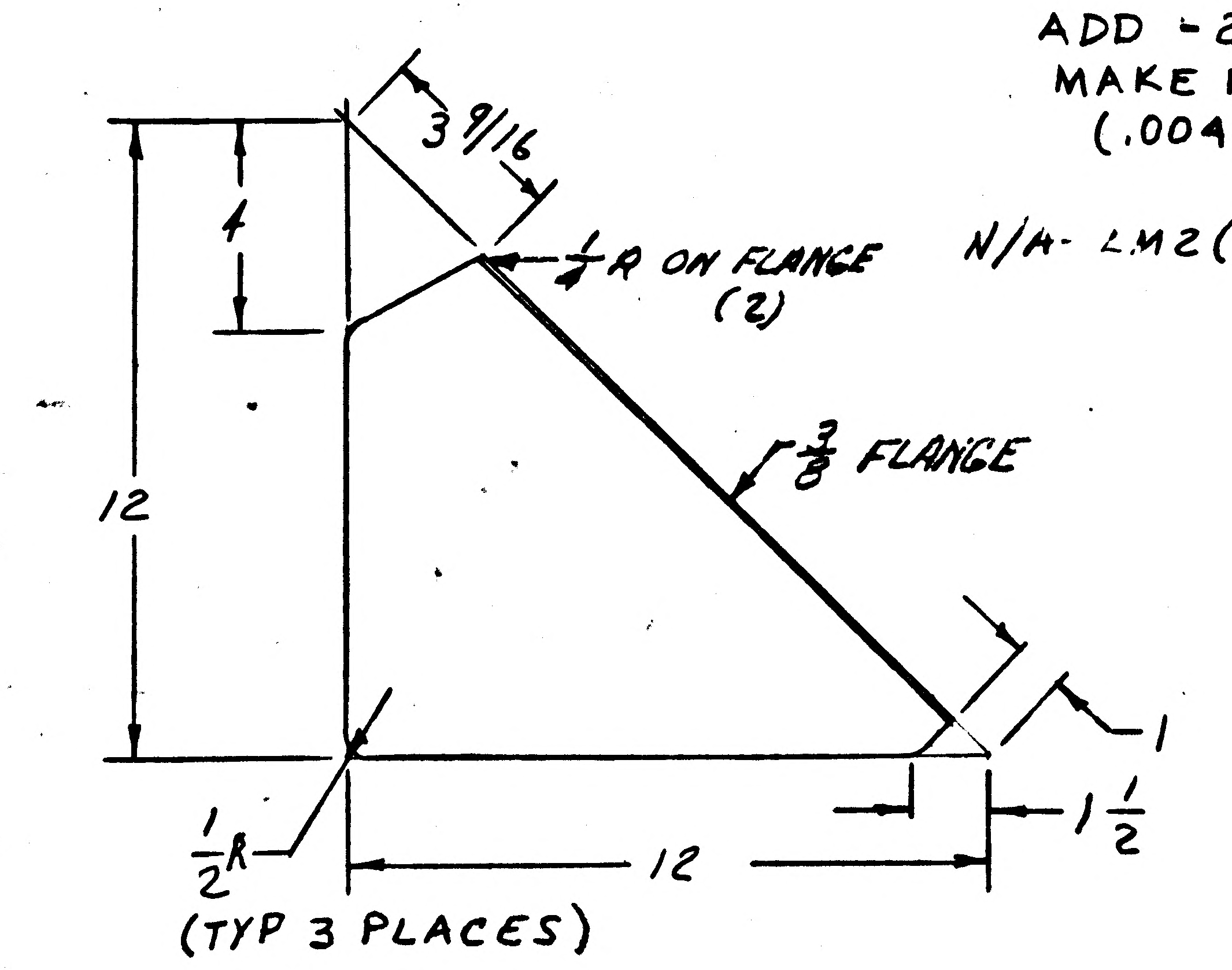
PRIORITY	DRAWING TITLE	DRAWING NO	EO NO.
C	SHIELD D/S QUAD III LWR METOROID PROTECTION	LDW280-18140	A

ISSUED BY F. STEINMETZ X6510 SECTION VDI GROUP NO. 335 PL 5

ENG 32.2 REV 3-65

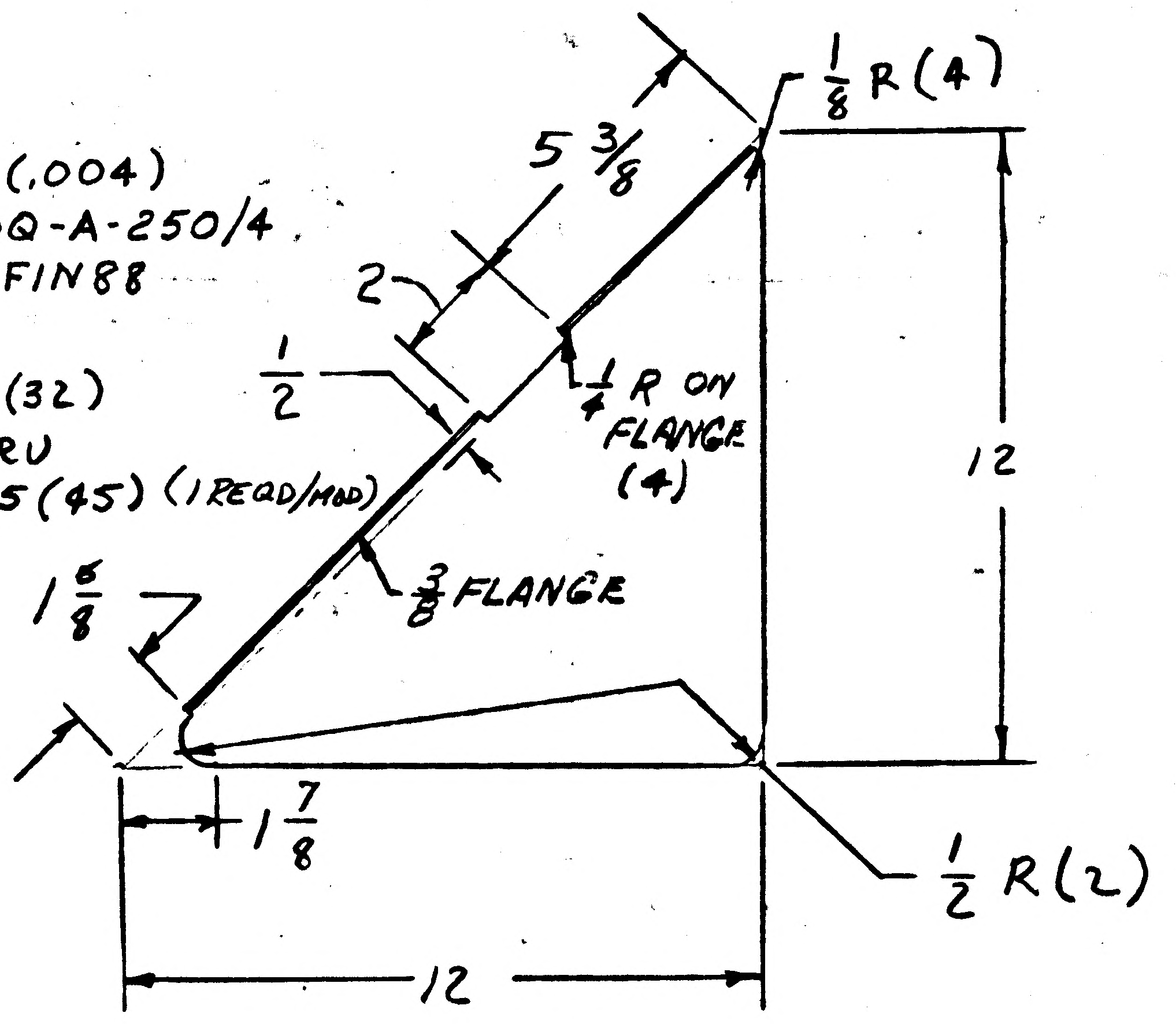
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18140
EO NO. A4
CONTROL INFO NO. LM-5-11985



ADD -27
MAKE FROM 2024-T81 QQ-A-250/4
(.004) BEND R-1/16 FIN88
I & T=E
N/A- LM2(32) THRU 15(45)-
LDW280-51642
(1 REQD/MOD)

ADD-29
MAKE FROM (.004)
2024-T81 QQ-A-250/4
BEND R 1/16 FIN88
I & T=E
N/A-LDW280-51642-LM2(32)
THRU
LM15(45) (1 REQD/MOD)



IN MOD BLK RESTRICT -13 & -15 TO LM1(31) WAS LM1(31) THRU 15(45)

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		5

REASON FOR EO: TO FACILITATE INSTL OF METEROID SHIELD

DESCRIPTION OF EO: RESTRICTED -13 & -15 TO LM1(31)
ADDED -27 & -29

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31) THRU 15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY		SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT.~~
✓			-13 -15		WT				JF	CH		
				DATE	3/10/67				3-13-67	3/1/67	3-22-67	3/4/67
				5	VD1							

PRIORITY: C
DRAWING TITLE: SHIELD D/S QUAD III LWR METEOROID PROTECTION
DRAWING NO. LDW280-18140
EO NO. A4

ISSUED BY DON RAGAS X65-10 SECTION VD1 GROUP NO. 335 PL 5

01
NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 230 | EO NO. 1438
CONTROL INFO NO. LDW280B7423

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18088	B3	SEE DWG
-18093	B3	
-18095	B2	
-18110	B1	
-18118	A4	
-18119	A4	
-18137	B3	
-18140	B1	
LDW280-18190	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG 8 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: 5/6/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE				4-2-69			4/9/69	5-5-69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1438

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[illegible] LEO 280 | EO NO. 1526
CONTROL INFO NO. LDW 280B 8105

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW 280-17998 ✓	SEE DWG	E2
18038 ✓		B5
18088 ✓		B4
18093 ✓		B4
18095 ✓		B3
110 ✓		B2
118 ✓		A5
119 ✓		A5
LDW 280-18140 ✓	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 25 & 26 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 ([redacted] 23) REQMTS

GAEC EO RELEASE: 8-5-69
8/9/69
Bauman 8-9-69
~~CONT~~

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
				DATE	7/29/69			7/29/69	8/2/69		8/4/69
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1526

8-22-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1732
CONTROL INFO NO. LDW280 39166

FOR THE DRAWINGS LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS. *

DRAWING NUMBER *	NEXT ASSEMBLY	DWG. TITLE	CHG. LTR
LDW280-51642-5-1	LDW280-58553	SEE DWG	B5
-18140-11,-21,-23,-25,-27 & -29	-51642		B3
-18201-15 & -17 & -19	-51642		B6
-18206-15,-17,-19 & -21	-51642		B6
-51818-1	-58553		B2
-18119-11,-13,-15,-17 & -19	-51818		A6
-28835-9	-58553		C5
-18190-13	-28835		D3
-54643-1	-28835		A2
LDW280-54832-1	LDW280-28835	SEE DWG	A2

* APPLICABLE DASH NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 59 CCA 2205	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LMMP REDESIGN. 3 TANK EXPANSION	REMOVED LM-10(40) THRU LM-14(44) EFF. FROM - *	VK 10/23

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	WP						WP	
DATE	—			10-20-69	10/21/69		10/20/69	10/22/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE ABOVE	LEO 280	1732

CDR 10-24
ISSUED BY D. SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51833	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	2
		LM-2(32)	2
LM	LDW280-51833	LM-1(31)	2

PART NO. LDW280-18141-11

GAEC SCH NO. 52

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00			2.00		3.00			
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -11

GRUMMAN REC INFO

PRIM NO.	LE(001)		EMF
207	MR/14	11-11-6	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS - DECIMALS - ANGLES

± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY	E MOUQUIN 10-24	RELIABILITY	
LAYOUT BY	E MOUQUIN 10-24	THERMO	1/10/66
CHECKED BY			
GRP LEADER	11/3/66		
VEH. DES. INT.	W.R. BISCHOFF 11/3		
STRUCTURES	11/10	PROJ ENGR	(AR) 11-9-66
STRUCTURES		REL GROUP	11/10/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN
DESCENT STAGE QUAD I
PLUME IMPINGEMENT~SCREW PROTECTION

SIZE B
CODE IDENT NO. 26512
LDW280-18141

SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 11-4-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18141-11	E	SKIN (MAKE FROM LDW280-17970-39) SEE NOTE 2							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18141

SCALE NONE
SHEET 2.00

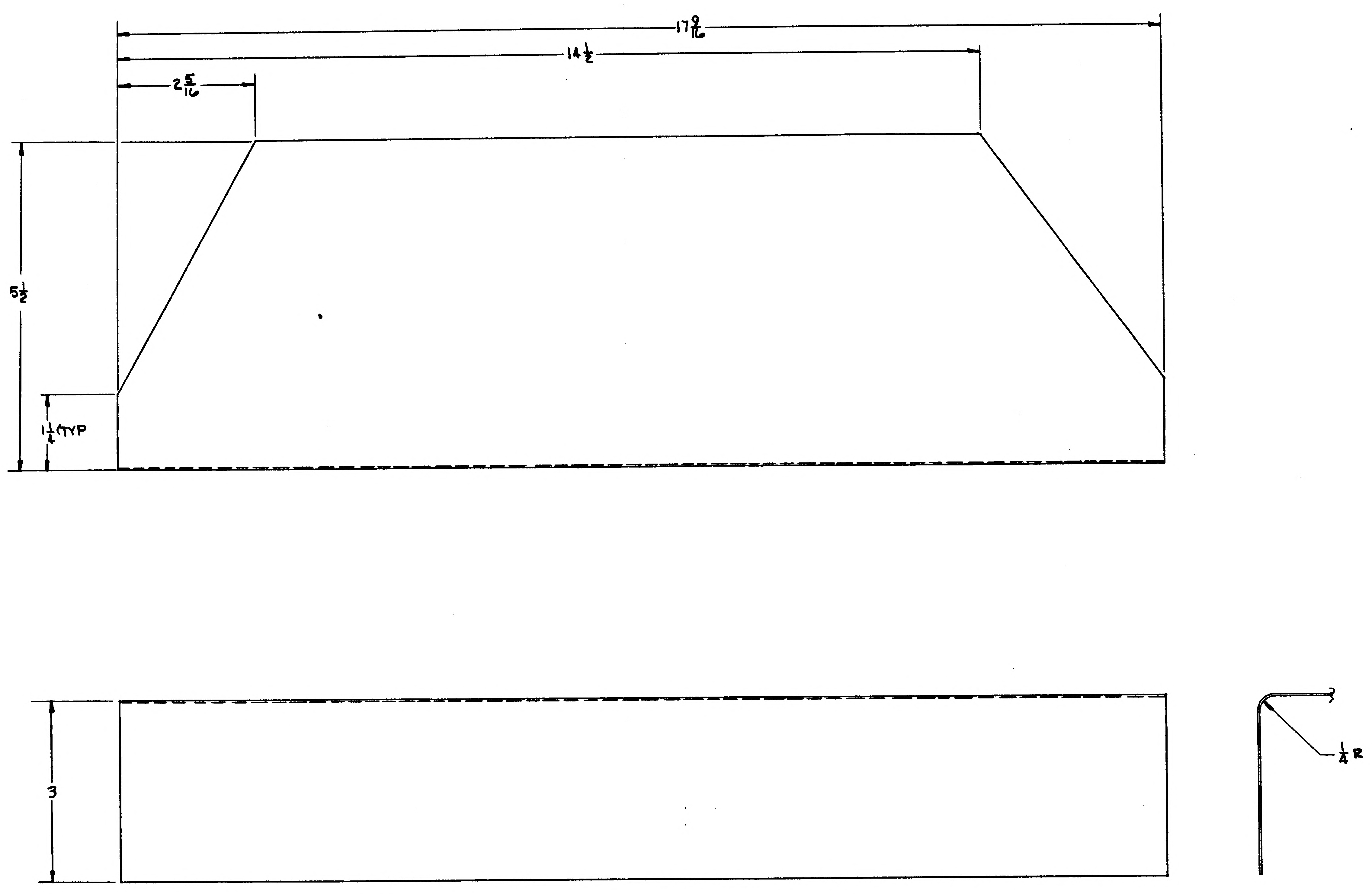
ENG 77.2 7-65

01

NAS 9-1100

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.

2. FINISH -11 IN ACCORDANCE WITH LPC280-5. PAINTED SURFACE NEAR SIDE.



LDW280-18141 -11

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-18141

LDW280-18141

LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18141	
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG NO. LDW280-18191		EO NO. A1
CONTROL INFO NO. LDW280A-5455		

ON-11 REMOVE EFF LM-2(32) THRU LM-15(45)

ADD -13 IDENTICAL TO -11 EXCEPT -13 TO BE MADE FROM INCONEL 600 FOIL, 12" WIDE THICKNESS .00125 PER AMS 5540E; EFF LM-2(32) & LM-3(33)

N/A & QUANTITIES REMAIN THE SAME

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

2

REASON FOR EO: LCR-928 TO IMPROVE PAINT ADHESION

DESCRIPTION OF EO: ON-11 REMOVED EFF LM-2(32) THRU LM-15(45) ADDED -13

GAEC EO RELEASE: ER 2/23/67 C

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	
LM		THRU	
LM		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -11

APPROVED BY	JAP			NAS	W/M			
DATE	2/14/67			2/13/67	2/14/67		2/17/67	2-20 67
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN D/S QUAD I PLUME IMPINGEMENT - SCREW PROTECTION	LDW280-18191	A1

ISSUED BY T. AMBROSIO / STRAKOSCH X1392 SECTION VD1 GROUP NO. 335 PL 35

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP. *
CODE IDENT NO. 26512

DWG. NO. LDW280-18141	EO NO. A2
CONTROL INFO NO. LDW280-A-5650	

ENG 32.1 REV 3-65 A

ENGINEERING ORDER

THIS IS A REVISION OF EO A1 ON LDW280-18141

REMOVE -11 (WAS FOR -11 REMOVE LM-2 THRU LM-15 EFF)

ADD -13 2REQD EFF LM-1(31) THRU LM-3(33) & 1 REQD EFF LM-4(34) THRU LM-15(45)
(WAS EFF LM-2(32) THRU LM-15(45)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCR 928

REASON FOR EO: LCR 928 IMPROVE PAINT ADHESION

DESCRIPTION OF EO: REVISED EO A1. REMOVED -11 (WAS REMOVE LM-2 THRU LM-15 EFF) FOR -13 2REQD EFF LM-1 THRU LM-3 & 1 REQD EFF LM-4 THRU LM-15 (WAS EFF LM-2 THRU LM-15)

GAEC EO RELEASE: VK 3/10/7 2 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY									
DATE	3/4/67			3/4/67	3/6/67		3/7/67	3/10/67
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C

DRAWING TITLE: SKIN DES STAGE QUAD I SCREW PROTECTION

DRAWING NO.: LDW280-18141

EO NO.: A2

ISSUED BY G. ZEMAN / J. STRATOSCH SECTION VD1 GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.2 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 559
CONTROL INFO NO. LDW 280A 6306

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW. REMOVE LDW280-17970-ALL DASH NUMBERS AND ADD "SEE NOTE *"

IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING No.	CHANGE#	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3	⬡	LM-1 THRU LM-15	
LDW 280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
LDW 280-28734	B2	□	LTA 8 LM-1 THRU LM-3	
LDW280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28740	B3	□	LTA-8 LM-1	
LDW 280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	B9	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW 280-28772	B6	□	LM-1 THRU LM-15	
LDW 280-28775	B7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	□	LM-1 THRU LM-15	
LDW 280-28806	A4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-51824	A3	□	LM-1 THRU LM-15	SEE DWG

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐			
REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE	DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △			GAEC EO RELEASE: JS 4-19-7	5

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	
		ABOVE	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY	DATE
✓		NOT	REQ		4/10/67

6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
				4/10/67	4/11/67		4/13	4-18-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 559

ISSUED BY H. PALLMEYER / J. STRAKOSCH 7034 SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280

EO NO. 757

CONTROL INFO NO. LDW280A 9695

FOR THE NOTED DWGS, REVISE EFFECTIVITY AS SHOWN:

DWG NO.	DASH NO.▲	DWG TITLE	EFF (NOW) ■	EFF (WAS) ●	CHANGE NO.
LDW280-51833 ✓	-5	SHIELD ASSY D/S QUAD I PLUME IMPINGEMENT	LM-1 (31) & LM-2 (32)	LM-1(31) THRU LM-15(45)	A4
-51833 ✓	-7	SHIELD ASSY D/S QUAD III PLUME IMPINGEMENT	LM-1(31) & LM-2(32)	LM-1(31) THRU LM-3(33)	
-51834 ✓	-1	FOIL ASSY D/S QUAD I & III ~SCREW PROTECTION	LM-1(31) & LM-2 (32)	LM-1(31) THRU LM-15 (45)	A2
-18141 ✓	-13	SKIN D/S QUAD I PLUME IMPINGEMENT ~SCREW PROTECTION	LM-1(31) & LM-2 (32)	LM-1(31) THRU LM-15 (45)	A4
LDW280-18142	-11	FOIL D/S QUAD I & III PLUME IMPINGEMENT SCREW PROTECT.	LM-1(31) & LM-2(32)	LM-1(31) THRU LM-15(45)	A1

Ⓟ

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 1244

REASON FOR EO

TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO

, RESTRICTED DASH NO. (▲)

TO (■) WAS (●)

GAEC C EO RELEASE

JK 10/18/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33) THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	10/17/67			10/17/67	10/17/67		10/17/67	10-18-67
REVISE DWG	RECORD EO	REWORK	SCRAP	P	V.Q.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY C

DRAWING TITLE NOTED ABOVE

DRAWING NO. LEO 280-

EO NO. 757

CDR 10-27-67

ISSUED BY DON THOMAS / STRAKOSCH SECTION V.Q.I. x 1153 GROUP NO. 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51834	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	2
		LM-2(32)	2
LM	LDW280-51834	LM-1(31)	2

PART NO. LDW280-18142 -11

GAEC SCH NO. 52

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO.	VE(001)		EMF
207	MP-14	11-11-6	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

DRAWN BY	E MOUQUIN 10-24	RELIABILITY	
LAYOUT BY	E MOUQUIN 10-24	THERMO	W Schr 11/4/
CHECKED BY			
GRP LEADER	11/3/66		
VEH. DES. INT	N. R. BISCHOFF 11/3		
STRUCTURES	11/10	PROJ ENGR	11-9-66
STRUCTURES		REL GROUP	11/10/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL
DESCENT STAGE~QUAD I & III
PLUME IMPINGEMENT~ SCREW PROTECT.

SIZE B CODE IDENT NO. 26512 LDW280-18142

SCALE NONE SHEET 1.00F 3

ENG 77.1 12-65

C.D.R. 11-4-66

01 NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18142-11	E	FOIL (MAKE FROM LDW280-17950-43)					—	—	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18142

SCALE NONE

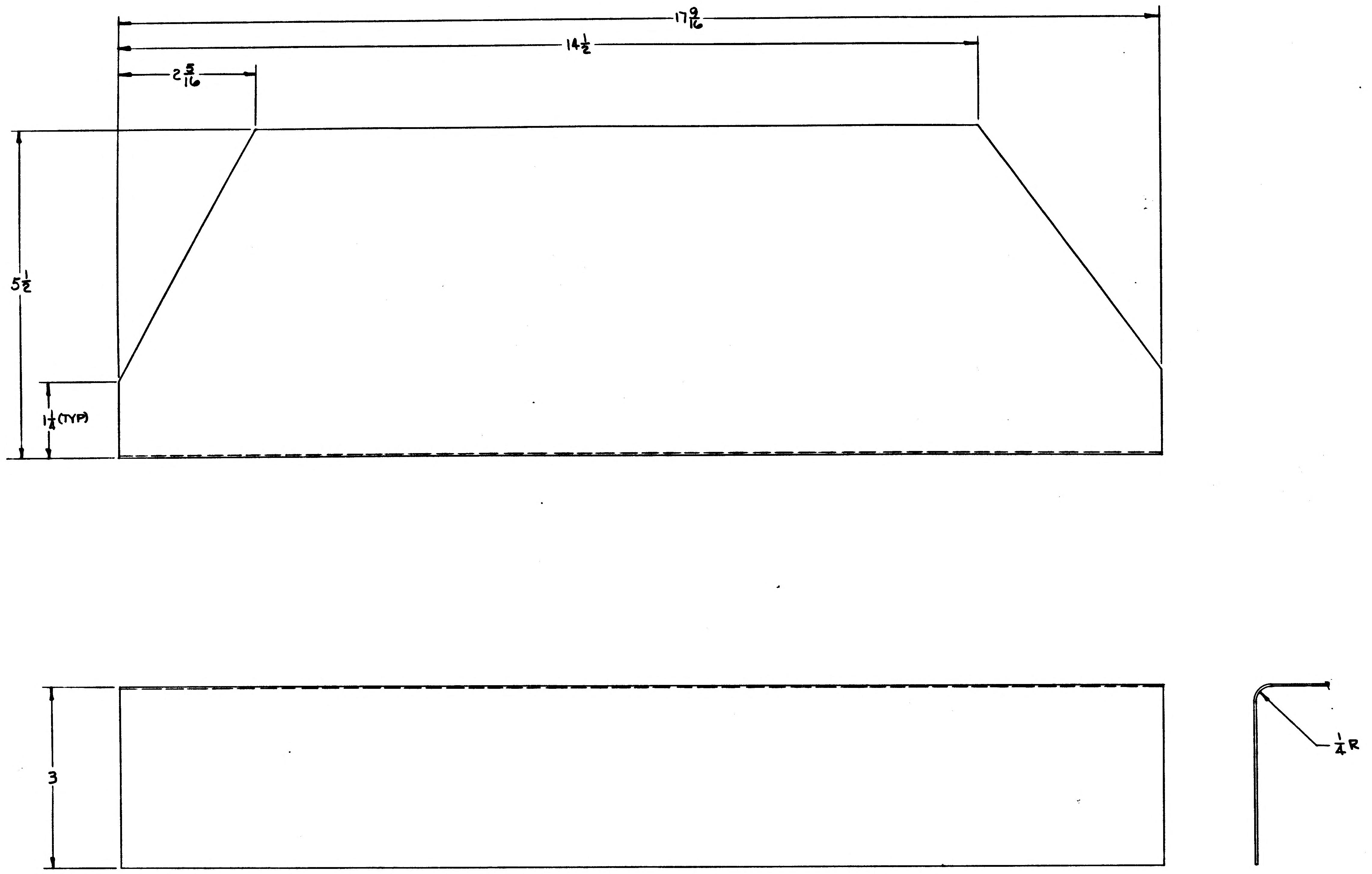
SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100

NOTES

1. NO TOOLING HOLES PERMITTED IN PARTS.



LDW280-18142-11

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

LAYOUT RELEASE - TO BE REDRAWN
ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18142	
MODEL OR END ITEM	SCALE			SHEET 3.00

LDW280-18142

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 757
CONTROL INFO NO. LDW280A 9695

FOR THE NOTED DWGS, REVISE EFFECTIVITY AS SHOWN:

DWG NO.	DASH NO.▲	DWG TITLE	EFF (NOW) ■	EFF (WAS) ●	CHANGE NO.
LDW280-51833 ✓	-5	SHIELD ASSY D/S QUAD I PLUME IMPINGEMENT	LM-1 (31) & LM-2 (32)	LM-1(31) THRU LM-15(45)	A4
-51833 ✓	-7	SHIELD ASSY D/S QUAD III PLUME IMPINGEMENT	LM-1(31) & LM-2(32)	LM-1(31) THRU LM-3(33)	
-51834 ✓	-1	FOIL ASSY D/S QUAD I & III ~SCREW PROTECTION	LM-1(31) & LM-2 (32)	LM-1(31) THRU LM-15 (45)	A2
-18141 ✓	-13	SKIN D/S QUAD I PLUME IMPINGEMENT ~SCREW PROTECTION	LM-1(31) & LM-2 (32)	LM-1(31) THRU LM-15 (45)	A4
LDW280-18142 ✓	-11	FOIL D/S QUAD I & III PLUME IMPINGEMENT SCREW PROTECT.	LM-1(31) & LM-2(32)	LM-1(31) THRU LM-15(45)	A1

Ⓡ 5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 1244

REASON FOR EO: TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO: , RESTRICTED DASH NO. (▲) TO (■) WAS (●)

GAEC C EO RELEASE: JK 10/18/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM3 (33) THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

	P	V.O.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY									
DATE		10/17/67			10/17/67	10/17/67		10/17/67	10-18-67

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280-
EO NO.: 757

CDR 10-27-67
ISSUED BY DON THOMAS / STRAKOSCH SECTION V.O.I. x 1153 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18143 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23702	DVT (70)	1 EA
LM	LDW280-23702	LM-6(36)	1 EA
LM	LDW280-23702	LM-5(35)	1 EA
LM	LDW280-23702	LM-4(34)	1 EA
LM	LDW280-23702	LM-3(33)	1 EA
PART NO. LDW280-18143-13 & -15		GAEC SCH NO. 50-1	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23702	DVT (70)	2
LM	LDW280-23702	LM-6(36)	2
LM	LDW280-23702	LM-5(35)	2
LM	LDW280-23702	LM-4(34)	2
LM	LDW280-23702	LM-3(33)	2
PART NO. LDW280-18143-11		GAEC SCH NO. 50-1	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED A-A

LAST DASH NO. USED -15

GRUMMAN REL INFO A

PRIM NO.	LE(001)		
215	MP-14	A-12-14-	6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/16 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY	T. FREDA 11-14-66	RELIABILITY	
LAYOUT BY	F. MARZELLA 11-2-66		
CHECKED BY	12-5-66		
~~GRP. LEADER~~			
VEH. DES. INT.			
STRUCTURES		PROJ ENGR	R. M. Carbee 12-8-66
STRUCTURES	12/8/6	REL GROUP	J Pagliaro 12/9/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE ~ RTG CASK SUPPORT
UPPER INBOARD SPLICE

SIZE B | CODE IDENT NO. 26512 | LDW280-18143 | A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00, 300						EO A1	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO.	LM-3, -4, -5, -6 DVT (70)	NONE		T. FREDA 11-14-66		12-9-66

FOR CONTINUATION OF REVISIONS SEE SHEET

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE	CODE IDENT NO.		
B	26512	LDW280-18143	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18143-15	E	PLATE	TITIANIUM SH	MIL-T-9046 TYPE III COMP "C"	6AL-4V	.080 x 2 x 9	NONE	NONE	
		LDW280-18143-13	E	PLATE	TITIANIUM SH	MIL-T-9046 TYPE III COMP "C"	6AL-4V	.080 x 2 x 9	NONE	NONE	
		LDW280-18143-11	E	PLATE	TITIANIUM SH	MIL-T-9046 TYPE III COMP "C"	6AL-4V	.030 x 2 x 7	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

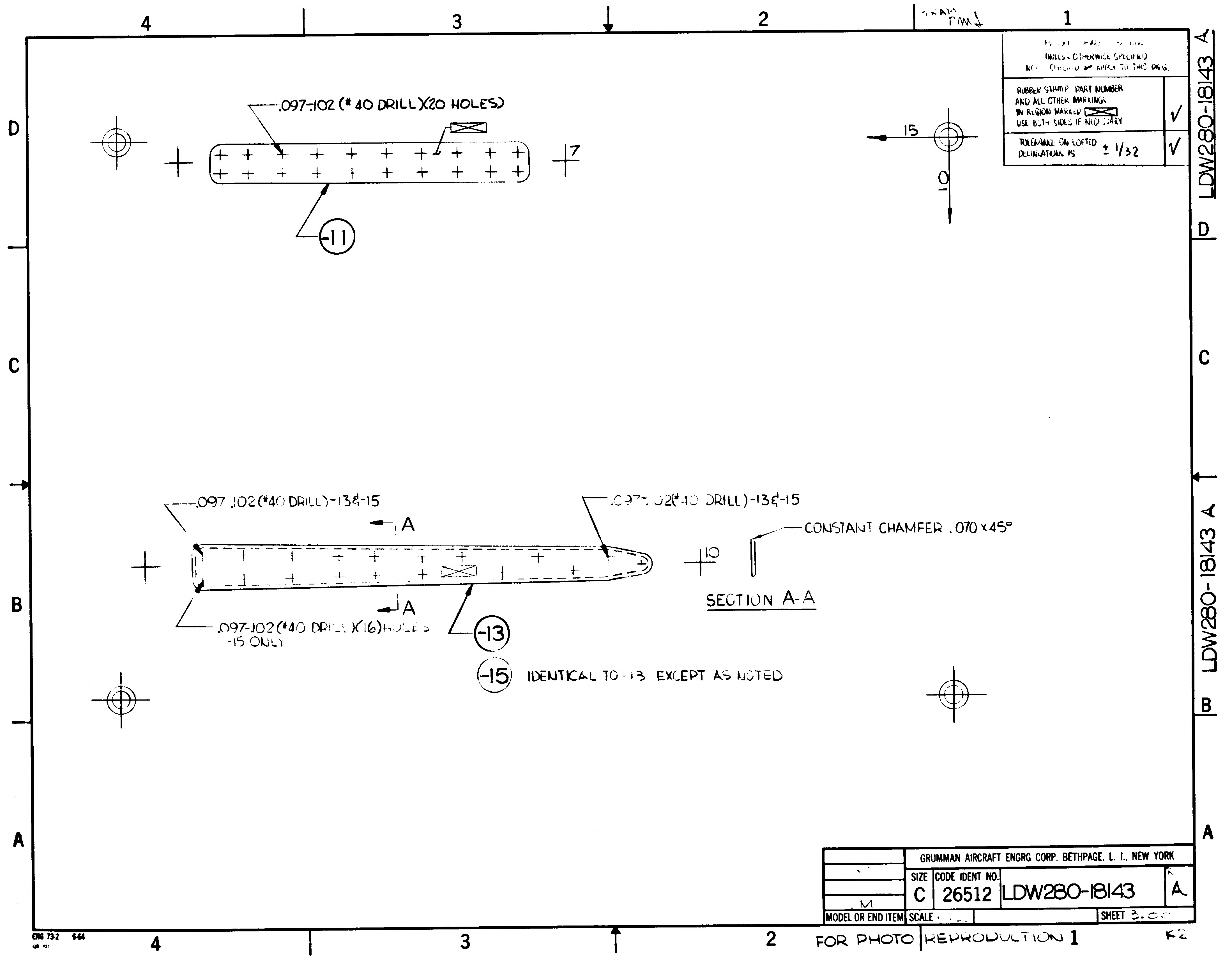
I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18143	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100

4
3
2
1
D
C
B
A
.097-.102 (#40 DRILL)(20 HOLES)
7
-11
15
10
UNLESS OTHERWISE SPECIFIED
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY ✓
TOLERANCE ON LOFTED DELINEATION IS ± 1/32 ✓
LDW280-18143 A
.097-.102 (#40 DRILL)-13 & -15
.097-.102 (#40 DRILL)-13 & -15
A
A
.097-.102 (#40 DRILL)(16) HOLES -15 ONLY
-13
-15 IDENTICAL TO -13 EXCEPT AS NOTED
CONSTANT CHAMFER .070 x 45°
SECTION A-A
GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK
SIZE C
CODE IDENT NO. 26512
LDW280-18143
A
MODEL OR END ITEM
M
SCALE
SHEET
FOR PHOTO REPRODUCTION
K2

01

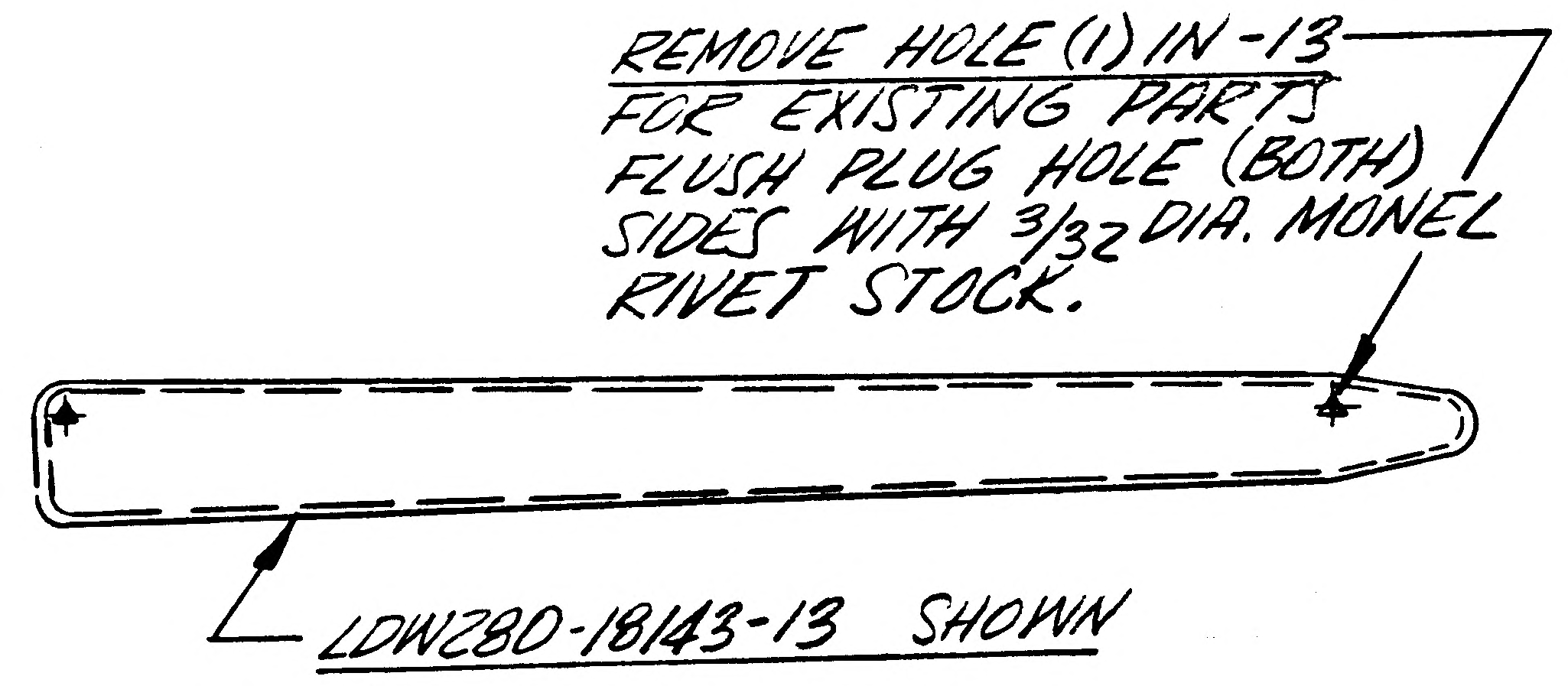
NAS 9-1100

H.G
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 EMF
ENGINEERING ORDER

DWG. NO. LDW280-18143
EO NO. B1
CONTROL INFO NO. LM-2-3127

REWORK -13 AS SHOWN BELOW:


REMOVE HOLE (1) IN -13
FOR EXISTING PARTS
FLUSH PLUG HOLE (BOTH)
SIDES WITH 3/32 DIA. MONEL
RIVET STOCK.
LDW280-18143-13 SHOWN

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG ☐

REASON FOR EO: HOLE WAS IN WRONG LOCATION FOR NEXT ASSEMBLY.

DESCRIPTION OF EO: IN F/D FOR -13: REMOVED #40 HOLE (1)

GAEC EO RELEASE: 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (36)	Des Verif
LM		THRU	Test (70)
LM		LM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	JMS				caw	caw	RMc	Groop
DATE	12/20				12/16/66	12/16/66	12-19-66	12/15/66
-1-	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: PLATE ~ DESCENT STAGE ~ R.T.G. CASK SUPT. ~ UPPER INBOARD SPLICE
DRAWING NO.: LDW280-18143
EO NO.: B1

ISSUED BY LIAISON / E.NEFF X3604 12-15-66 SECTION V.D.I. GROUP NO. 335 PL 35

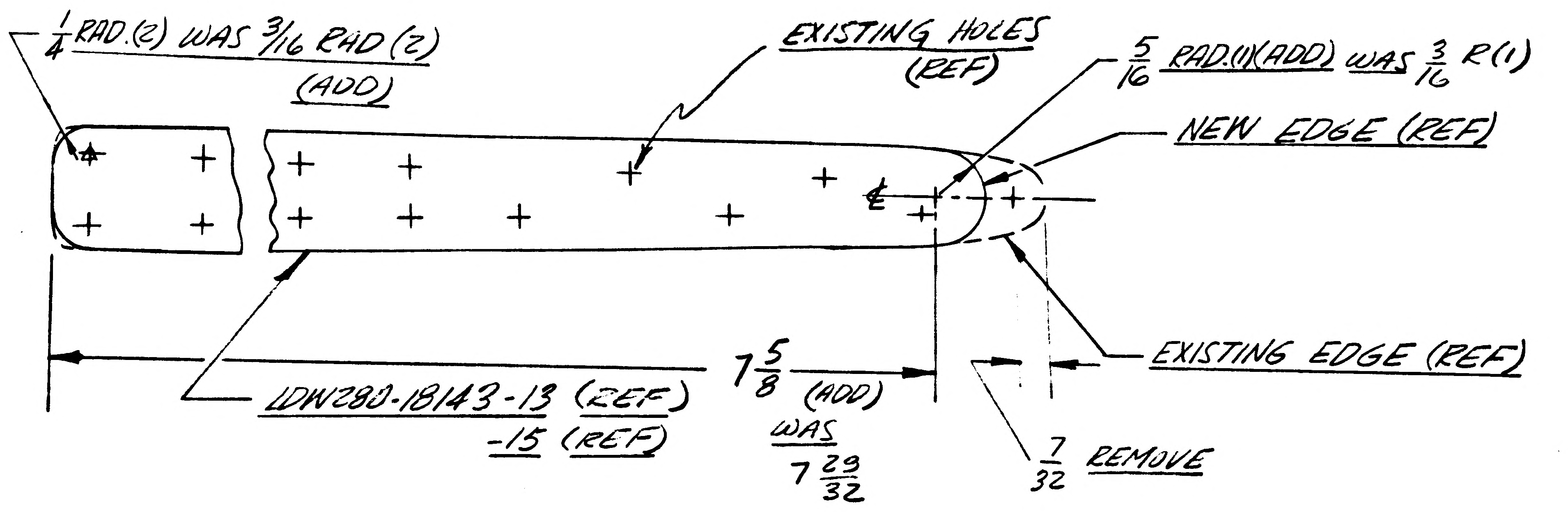
01 NAS 9-1100

4·G
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EHF

DWG. NO. LDW280-18143		EO NO. B2
CONTROL INFO NO. LM-2-3136		

REWORK -13 & -15 AS SHOWN BELOW:



1/4 RAD.(2) WAS 3/16 RAD (2) (ADD)
EXISTING HOLES (REF)
5/16 RAD.(1)(ADD) WAS 3/16 R(1)
NEW EDGE (REF)
EXISTING EDGE (REF)
LDW280-18143-13 (REF)
-15 (REF)
7 5/8 (ADD) WAS 7 29/32
7/32 REMOVE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PLATES HAD TO BE REWORKED IN ORDER TO FIT FLUSH AGAINST WEB OF STRUT ON RTG SUPT.	ON-1 IN F/D: 5/16 RAD.(1) WAS 3/16 R.(1); 1/4 R.(2) WAS 3/16 (2) 7 5/8 WAS 7 29/32. REMOVED 7/32 DIM. (1)	02025

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(36) THRU	
LM		LM-6(36) DESIGN VERIFICATION	
LM		TEST(70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
				DATE					12/19/66	12/19/66	12-21-66	12/19/66
REVISE DWG	RECORD EO	REWORK	SCRAP			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
✓		✓		-/-					caw	caw		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE ~ DESCENT STAGE ~ RTG CASK SUP'T UPPER INBOARD SPLICE	LDW280-18143	B2

ISSUED BY LIAISON/E.NEFF X3604 12-19-66 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-18143
EO NO. B3
CONTROL INFO NO. LDW280M5879

FROM -11, -13, -15

REMOVE EFFECTIVITY LM-4(34), -5(35), -6(36)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 19-975 2

REASON FOR EO: REDESIGNED R.T.G. SUPPORTS (CCA-498) LCD 19-975

DESCRIPTION OF EO: FROM -11, -13, -15 REMOVED EFF LM-4(34)-5(35), -6(36)

GAEC EO RELEASE: C JK 4/10/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY		
LM		LM-4(34	LM-5(35)
LM		LM-6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
REVISE DWG	RECORD EO	REWORK	SCRAP									
✓			-11 -13 -15	DATE	3/18/67			3/18/67	3/20/67		3-21-67	4-10-67
				5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: PLATE - DESCENT STAGE - R.T.G. CASK SUPT - UPPER INBD SPLICE

DRAWING NO.: LDW280-18143

EO NO.: B3

ISSUED BY K. BEACH / J. STRAKOSCH X 1153 SECTION VD1 GROUP NO. 280 PL 25

01 NAS 9-1100

LDW280-18144 C

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28643	LM-3 (33)	1
LM	LDW280-28643	LM-2 (32)	1
LM	LDW280-28643	LM-1 (31)	1
LDW280-18144-19			
PART NUMBER			
LM	LDN280-28643	LM-5(35)	1
LM	LDW280-28643	LM-4 (34)	1
LM	LDW280-28643	LM-3(33)	2
LM	LDW280-28643	LM-2 (32)	2
LM	LDW280-28643	LM-1 (31	2
PART NO. LDW280-18144-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LM280-28643	LM-5(35)	1
LM	LDW280-28643	LM-4(34)	1
LM	LDW280-28643	LM-3(33)	1
LM	LDW280-28643	LM-2 (32)	1
LM	LDW280-28643	LM-1 (31)	1
LDW280-18144-17			
PART NUMBER			
LM	LDW280-28643	LM-3(33)	1
LM	LDW280-28643	LM-2(32)	1
PART NO. LDW280-18144-3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28643	LM-5(35)	2
LM	LDW280-28643	LM-4(34)	2
LM	LDW280-28643	LM-3(33)	1
LM	LDW280-28643	LM-2 (32	1
LM	LDW280-28643	LM-1 (31)	1
LDW280-18144-21			
PART NUMBER			
LM	LDW280-28643	LM-5 (35)	1
LM	LDW280-28643	LM-4(34)	1
LDW280-18144-29 & -37			
PART NUMBER			
LM	LDW280-28643	LM-1 (31)	1
PART NO. LDW280-18144-1		GAEC SCH NO. 52	

WORK PACKAGE FUNCTION NO 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		1.10		2.00		3.00		4.00
REV	C		C		C		C		C
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REL INFO C	
		PRIM NO.	DK. (001)
LAST DASH NO. USED	-37	207	MP-16C-3/6/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	ROESSLER 11-7-66	RELIABILITY	
LAYOUT BY	ROESSLER DR		
CHECKED BY			
GROUP LDR	J. STRAKOSCH 11-10-66		
VEH DES INT	J. PUSATERI 11-11-66		
STRUCTURES	FEB 11-11-66	PROJ ENGR	R.M. CARBEE 11-12-66
STRUCTURES		REL GROUP	J. GROD 11-12-66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSEMBLY
DESCENT STAGE, PROPELLANT TANK
COVER METEOROID PROTECTION AFT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18144	C
SCALE NONE		SHEET 1.00 OF 5	

SUPERSEDES LDW280-18144 N.C. 11-12-66

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED NO CHANGE LAST REV NO CHANGE LOFTED DWG WAS DIM DWG J. GRIECO 6-9-67						
A	1	2 300						LEC 250-406	ADDED NOTE 1	LM-1 THRU LM-15	NOT	REQD	J. CIRILLO 6-9-67		
	2	110, 300	5A	U		✓		LCD 2008	REF LEC 250-406 ADDED DETAIL 'A'						
	3	100 110 200 300	7A						REVISED -11 & -23 PER SHOP TEMPLATE. ON -11 RESTRICTED EFF WAS LM-1, LM-2 & LM-3. ON -23 RESTRICTED EFF WAS LM-1 THRU LM-15. ADDED -1 ASSY			-11 -23			
	4	100 110 200 300							REMOVED -13 WAS EFF ON LM-4 THRU LM-15. ON -15 -17 -19 & -21 REVISED EFF WAS LM-1 THRU LM-15			-15, -17 -19-21			
	5	200 300							ADDED -3 ASSY -25 & -27	LM-2 & LM-3	NOT	REQD			
	6	100 & 300							ADDED NOTE 2	NOT REQD	NOT	REQD			
B	1			U		✓		LCD 2008	ADDED -5 ASSY & EFF LM-4 & LM-5 TO -15, -17 & -21 ADDED SH 4. ADDED -29, -31, -33 & -35	LM-4 & LM-5	NOT	REQD			
C	1	100, 110 200, 300 400				✓		LCD 2008	IN F/D, B/M & MOD BLK REMOVED -5 ASSY, -31, -33 & -35 STRIPS, & SPOTWELD INFORMATION, ADDED -37 STRIP, NOTE 3 & DETAIL B	LM-4 LM-5		✓	J. MANCINI		

CHG APPROVED

LTR	GROUP LDR	RE-DES	INTERFACES	STRUCTURES	WEIGHTS	RELIABILITY
A	—					
B						
C						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18144	C
SCALE NONE			SHEET 1

01

NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			LDW280-18144-37	E	STRIP	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 X 25 X 26	NONE	NONE	SH 4
			-29		SHIELD				.004 X 25 X 26			SH4
1			-27		STRIP				.004 x 25 x 26			3A
	1		-23		STRIP				.004 x 25 x 26			6A
			-21						.004 x 1 x 4			5B
			-19						.004 x 1 x 5			5C
			-17						.004 x 1 x 3			5C
			-15		STRIP				.004 x 1 x 2			5C
1			-25		SHIELD				.004 x 25 x 26			4C
	1		-11		SHIELD	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 x 25 x 26	NONE	NONE	7C
			-3		SHIELD ASSY (WELDED)					FLW/SWT	NONE	3A
			LDW280-18144-1	E	SHIELD ASSY (WELDED)					FLW/SWT	NONE	7A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
FLW	FOIL SPOTWELD	LSP-14-61C2
SWT	SEALING (SW)	LSP-14-144C0

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18144	C

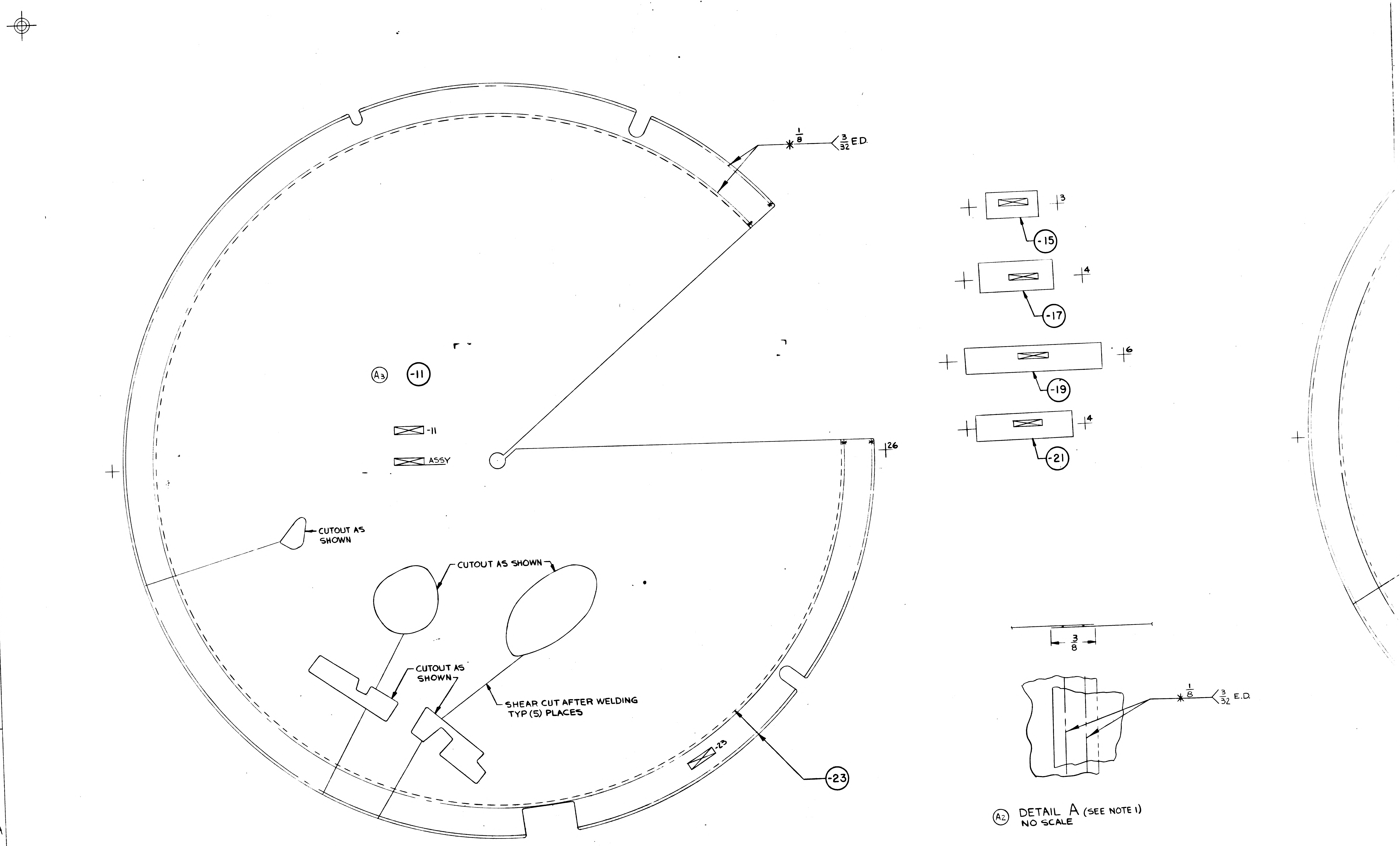
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

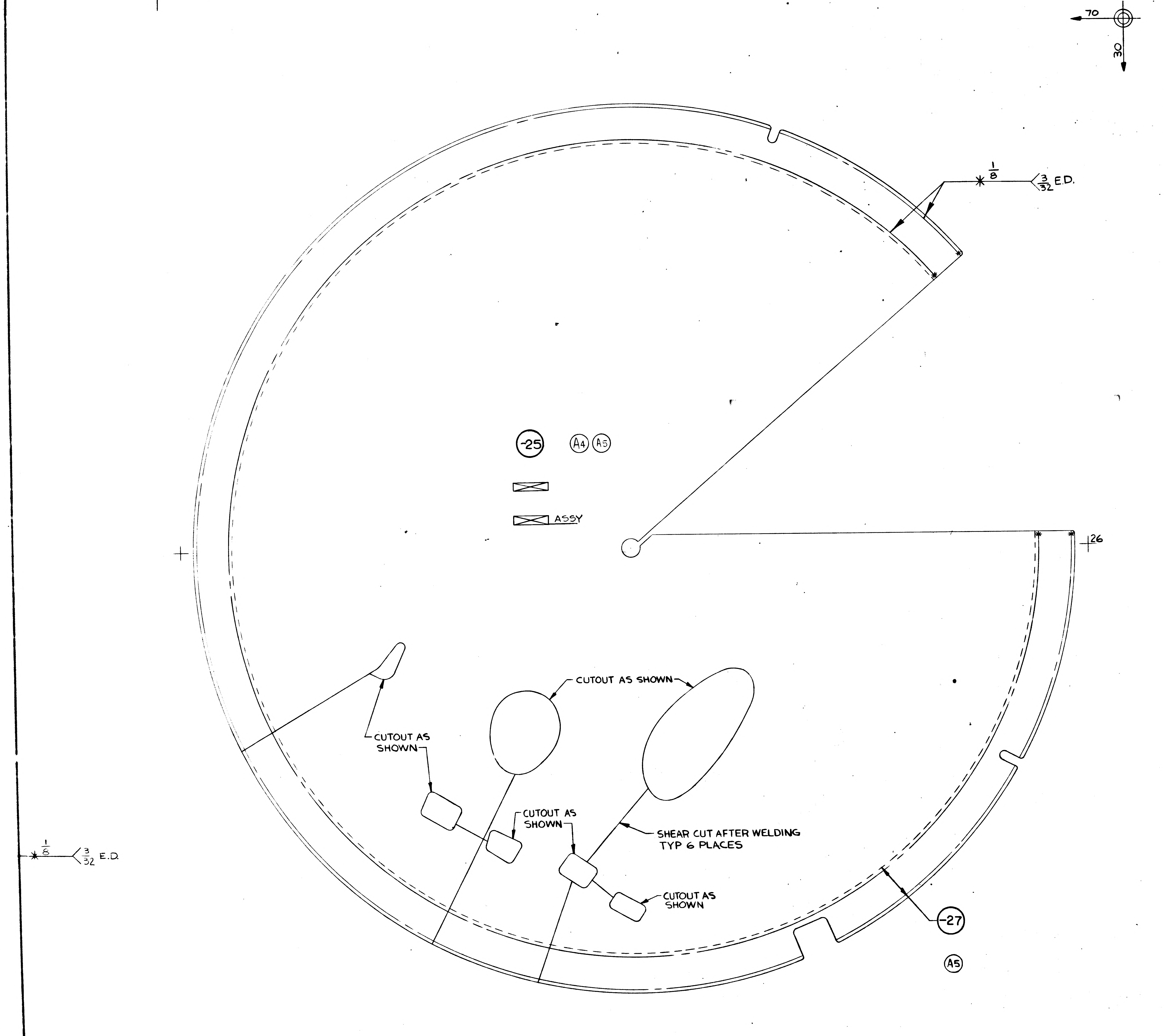

8
7
6
5
D
C
B
A
$\frac{1}{8}$ $\frac{3}{32}$ E.D.
A3
-11
-11
ASSY
26
CUTOUT AS SHOWN
CUTOUT AS SHOWN
CUTOUT AS SHOWN
SHEAR CUT AFTER WELDING TYP (5) PLACES
-23
-23
3
-15
4
-17
6
-19
4
-21
$\frac{3}{8}$
$\frac{1}{8}$ $\frac{3}{32}$ E.D.

A2 DETAIL A (SEE NOTE 1)
NO SCALE

A3 LDW280-18144-1 ASSY

01/02 NAS 9-1100

LDW280-18144 SH 3



Ⓐ5 LDW280-18144-3 ASSY

NOTE

1. WHERE PARTS ARE LARGER THAN THE BASIC STOCK SIZE OF AVAILABLE MATERIAL, SHEETS MAY BE SPLICED AS SHOWN IN DETAIL 'A'. LOCATION, DIRECTION & NUMBER OF SPLICES OPTIONAL
2. NO TOOLING HOLES PERMITTED IN PARTS
3. IF -29 & -37 ARE LARGER THAN THE BASIC STOCK SIZE OF ORIGINAL MATERIAL, SHEETS MAY BE SPLICED AS SHOWN IN DETAIL "B" SHEETS ARE TO BE TAPED TOGETHER & THEN SPOTWELDED ON NEXT HIGHER ASSY. LOCATION, DIRECTION & NUMBER OF SPLICES ARE OPTIONAL

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.5 SQ. FT.

PRINT TRIM LINE

LDW280-18144C

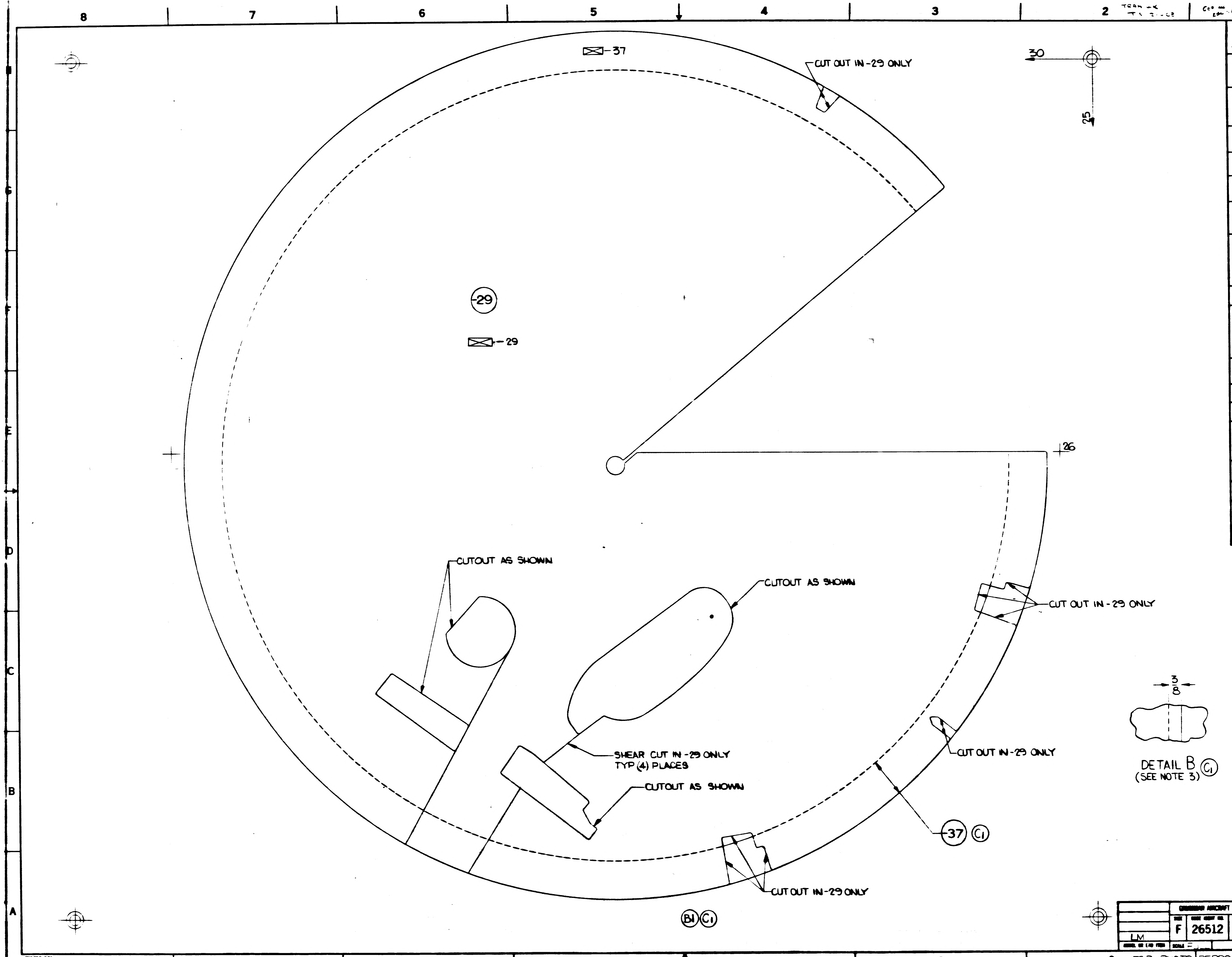
02/02 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18144	C
MODEL OR END ITEM	SCALE 1/1		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2
2FR

LDW280-18144 SH 3



-37
CUT OUT IN -29 ONLY
30
25
29
-29
26
CUTOUT AS SHOWN
CUTOUT AS SHOWN
CUT OUT IN -29 ONLY
CUT OUT IN -29 ONLY
SHEAR CUT IN -29 ONLY
TYP (4) PLACES
CUTOUT AS SHOWN
37
C1
CUT OUT IN -29 ONLY
3/8
DETAIL B C1
(SEE NOTE 3)
B1 C1

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.005R TO .062R ± .010
.062R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125 √ SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

250 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL ƒ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

GRUMMAN AIRCRAFT ENGRG. CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE F	CODE IDENT NO. 26512	LDW280-18144	C
MODEL OR LAV PROG	SCALE =		SHEET 4.00	

FOR PHOTO REPRODUCTION K2

LDW280-18144 C

01

NAS 9-1100

TRANS OK R.K. 8/1/67 OZALID OK R.K. 8/1/67

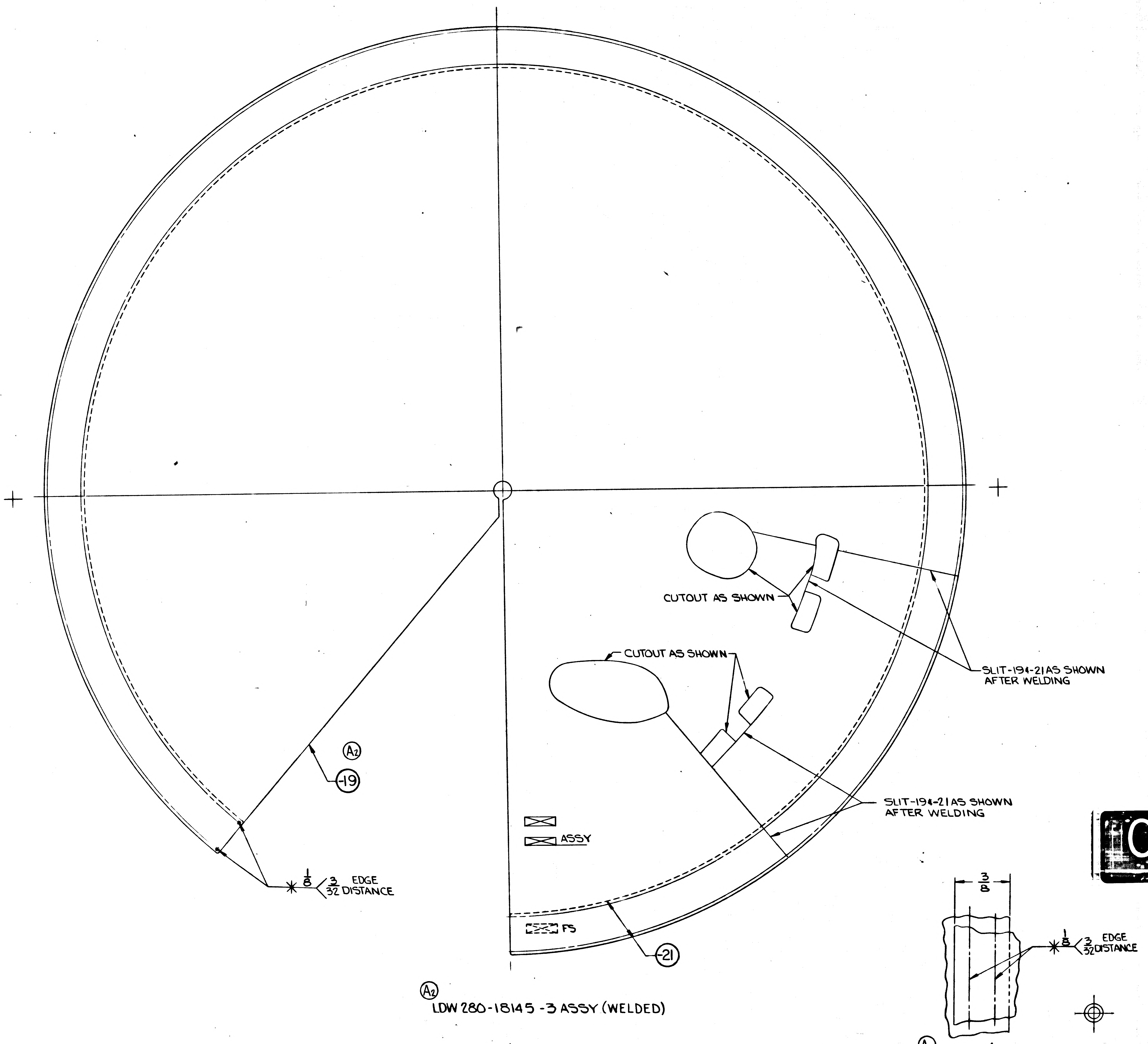
NOTES
1. WHERE PARTS ARE LARGER THAN THE BASIC STOCK SIZE OF AVAILABLE MATERIAL SHEETS MAY BE SPLICED AS SHOWN IN DETAIL "A" (ZONE 2A). LOCATION, DIRECTION & NUMBER OF SPLICES OPTIONAL.
2. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 100)= 25 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 6.5 SQ. FT.
PRINT TRIM LINE


CUTOUT AS SHOWN
CUTOUT AS SHOWN
SLIT-194-21 AS SHOWN AFTER WELDING
SLIT-194-21 AS SHOWN AFTER WELDING
A2
-19
1/8 3/32 EDGE DISTANCE
ASSY
FS
-21

A2 LDW 280-18145 -3 ASSY (WELDED)

A1 DETAIL A (SEE NOTE 2)
SCALE: NONE

02/02

NAS 9-1100

LDW280-18145 A

LDW280-18145 SH 3

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18145	A
MODEL OR END ITEM	SCALE FULL & NOTED		SHEET 3.00	

FOR PHOTO REPRODUCTION 2F

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~CUST~~ APPD
									RETRACED NO CHANGE LAST REV NC LOFTED DWG WAS DIMENSIONED DWG				W. CONROY 8-11-67		
A	1	3.00	1D 2A					LEO 280-406	ADDED NOTE NO. 1	LM-1 THRU LM-15	NOT	REQD	W. CONROY 8-11-67		
	2	1.00 1.10 2.00 3.00	3A 7A 6B			✓		LCD 2008	REVISED -11 & -17 PER SHOP TEMPLATE & REVISED EFF WAS LM-1 THRU LM-15. ADDED -1 & -3 ASSY, -19 & -21. IN MOD BLK ON -13 & -15 4EA REQD ON LM-1 THRU LM-3 WAS 2 EA REQD ON LM-1 THRU LM-15	NOTED		-11 -17			
	3					✓			ADDED NOTE 2	NOT REQD	NOT	REQD			
B	1	1.00, 1.10, 2.00 & 4.00		U		✓		LCD2008 OK.	IN F/D, B/M & MOD BLK ADDED -5 ASSY & EFF LM-4 (34) & LM-5 (35) FOR -13 & -15, ADDED SH 4.00	LM-4 (34) LM-5 (35)	NOT	REQD	J. BIANCHINO 2-4-68		
C	1	1.00, 1.10 2.00, 3.00 & 4.00				✓		LCD2008 OK	IN F/D, B/M & MOD BLK REMOVED -5 ASSY, -25, & SPOTWELD INFORMATION, ADDED -27, NOTE 3 & DETAIL B	LM-4 (34) LM-5 (35)		-5 -25	J. BIANCHINO 3-1-68		

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCTURE	STRUCTURE	PROJ ENG	REL GROUP
A	—		8/24			
B	2/15/68		2/17			
C	3/1/68		3/4/68	FEB 3/4		

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18145 | C

SCALE NONE | SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18145 C

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28838	LM-3(33)	1
LM	LDW280-28838	LM-2(32)	1
PART NO. LDW280-18145-3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28838	LM-5(35)	2 EA
LM	LDW280-28838	LM-4(34)	2 EA
LM	LDW280-28838	LM-3(33)	4 EA
LM	LDW280-28838	LM-2(32)	4 EA
LM	LDW280-28838	LM-1(31)	4 EA
PART NO. LDW280-18145-13&15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28838	LM-5(35)	1
LM	LDW280-28838	LM-4(34)	1
LDW280-18145-23 & -27			
PART NUMBER			
LM	LDW280-28838	LM-1(31)	1
PART NO. LDW280-18145-1		GAEC SCH NO. 52	

WORK PACKAGE FUNCTION # 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	C	C	C	C	C				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED B
LAST DASH NO. USED -27
GRUMMAN REL INFC C
PRIM NO. 207 NK-[illegible] C-3/8/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY ROESSLER 11-7-66
LAYOUT BY ROESSLER
CHECKED BY
GR LEADER J. STRAKOSCH 11-10-66
WEIGHTS [illegible] J. PUSATERI 11-11-66
STRUCTURES
STRUCTURES
PROJ ENGR R.M. CARBEE 11-12
REL GROUP J. TAGLIAVIA 11-15-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY
DESCENT STAGE PROPELLANT TANK COVER
METEORITE PROTECTION R.H.

SIZE B
CODE IDENT NO. 26512
LDW280-18145 C
SCALE NONE
SHEET .00 OF 5

ENG 77.1 12-65

C CDR 3/8/68 SUPERSEDES LDW 280-18145 NC 11-7-66

01

NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			LDW280-18145-27	E	STRIP	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004×26×26	NONE	NONE	5-
			LDW280-18145-23	E	SHIELD	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004×26×26		NONE	5-
1			LDW280-18145-21	E	STRIP	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004×26×26		NONE	3A
1			-19		SHIELD				.004×26×26			3A
	1		-17		STRIP				.004×26×26			6A
			-15		STRIP				.004×1×1			5E
			-13		STRIP				.004×1×4			5E
	1		-11		SHIELD	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004×26×26	NONE		7A
			LDW280-18145-3		SHIELD ASSY	(WELDED)				FLW & SWT		3A
			LDW280-18145-1	E	SHIELD ASSY	(WELDED)				FLW & SWT	NONE	7A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	FOIL WELDING	LSP14-6102
						SWT	SEALING	LSP 14-14400

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18145	C

SCALE NONE

SHEET 2.00

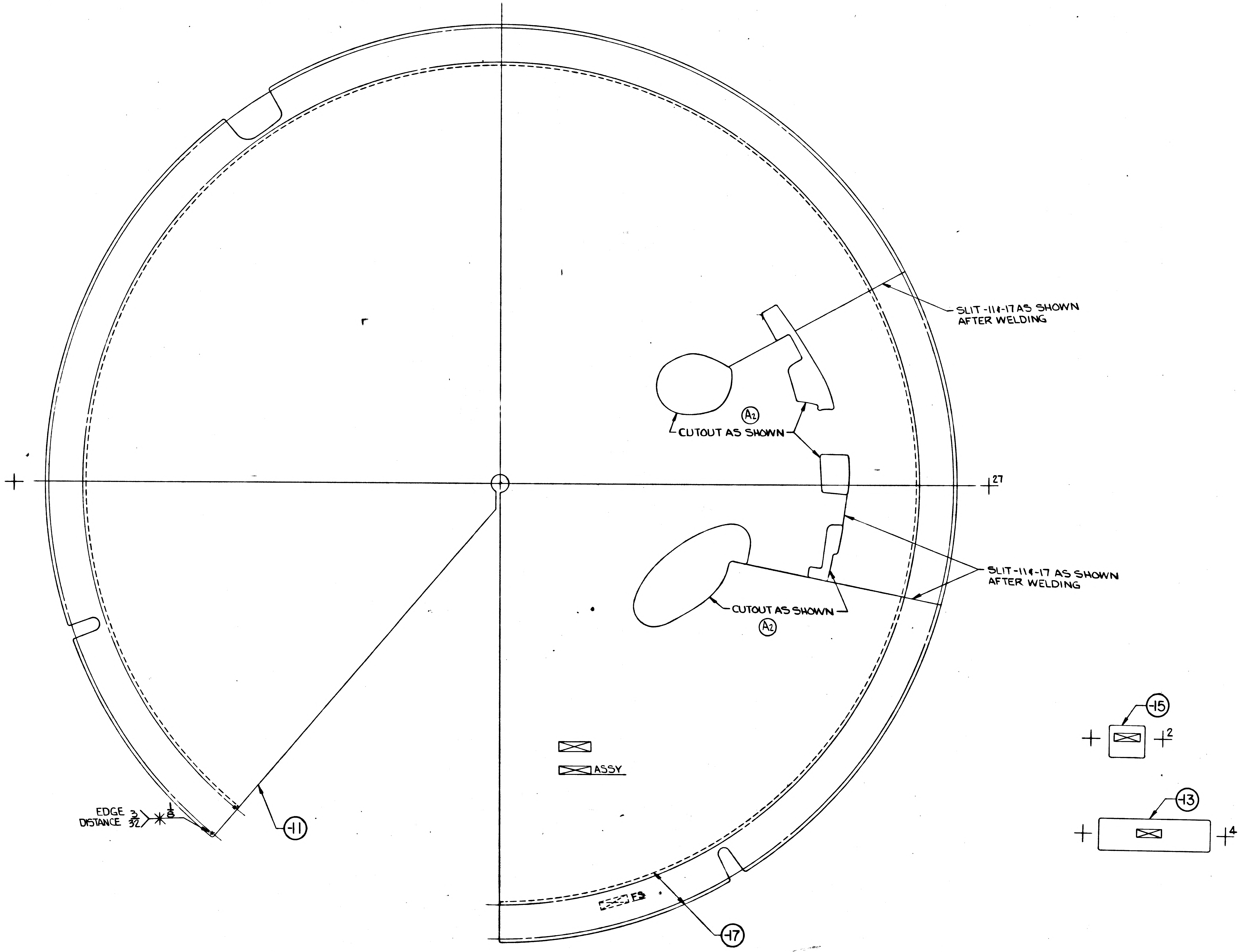
ENG 77.2 7-65

01

NAS 9-1100

[illegible] 11 OK
[illegible]

D
C
B
A

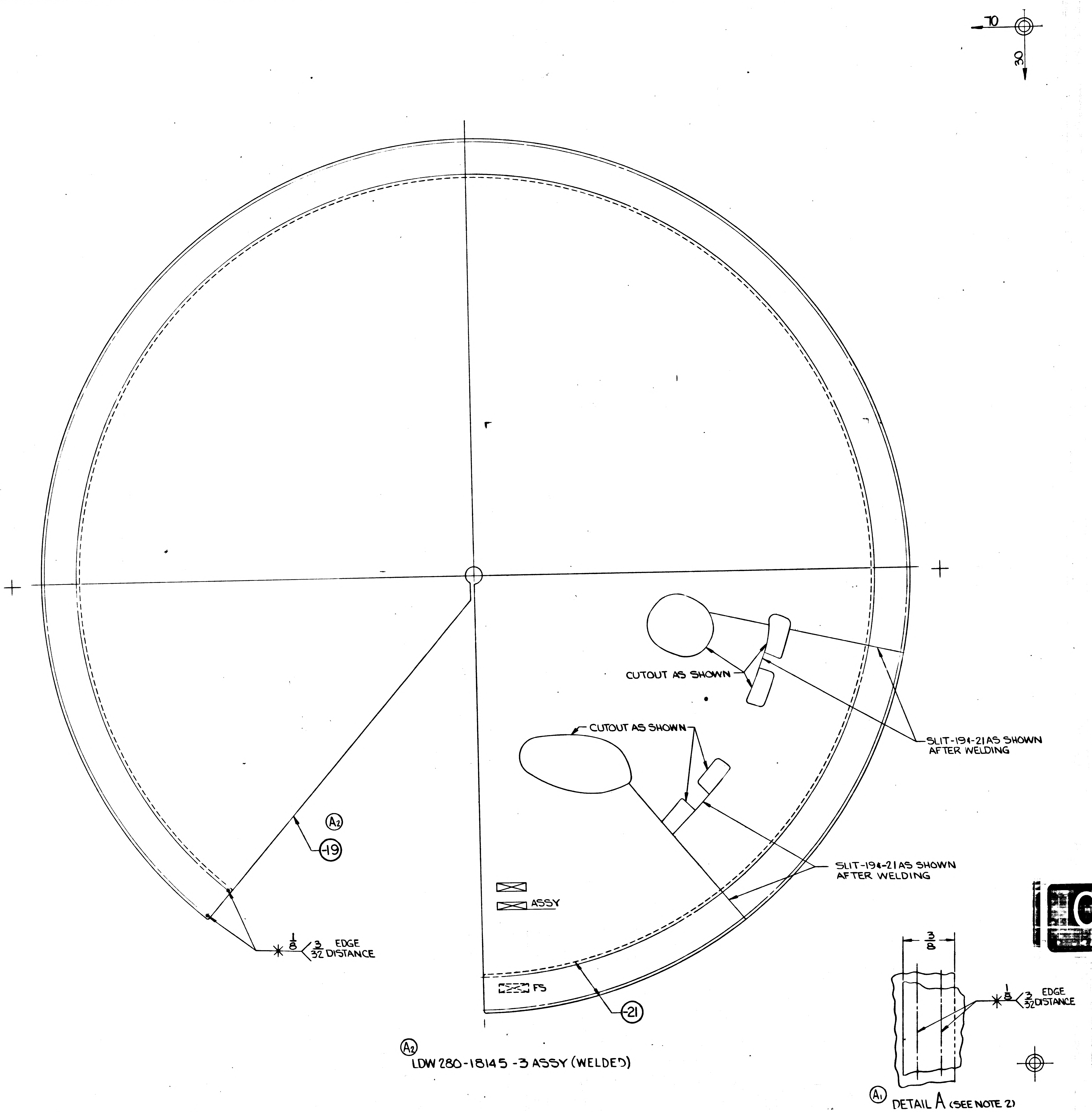

SLIT -11&-17 AS SHOWN
AFTER WELDING
(A2)
CUTOUT AS SHOWN
27
SLIT -11&-17 AS SHOWN
AFTER WELDING
CUTOUT AS SHOWN
(A2)
-15
2
-13
4
ASSY
EDGE DISTANCE 3/32
1/8
-11
-17

(A2)
LDW280-18145-1 ASSY (WELDED)

01/02
NAS 9-1100

LDW280-18145 SH 3

TRANS OK RK 8/1/67
OZALID OK RK 8/1/67



A2 LDW 280-18145 -3 ASSY (WELDED)

A1 DETAIL A (SEE NOTE 2)
SCALE: NONE

NOTES
1. WHERE PARTS ARE LARGER THAN THE BASIC STOCK SIZE OF AVAILABLE MATERIAL SHEETS MAY BE SPLICED AS SHOWN IN DETAIL "A" (ZONE 2A). LOCATION, DIRECTION & NUMBER OF SPLICES OPTIONAL.
2. NO TOOLING HOLES PERMITTED IN PARTS.
3. IF -23 & -27 ARE LARGER THAN THE BASIC STOCK SIZE OF ORIGINAL MATERIAL, SHEETS MAY BE SPLICED AS SHOWN IN DETAIL "B", SHEETS ARE TO BE TAPED TOGETHER & THEN SPOTWELDED ON NEXT HIGHER ASSY. LOCATION, DIRECTION & NUMBER OF SPLICES ARE OPTIONAL.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 100)= 25 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 6.5 SQ. FT.

PRINT TRIM LINE

02/02 NAS 9-1100

LDW280-18145 C

LDW280-18145 C

LM	
MODEL OR END ITEM	

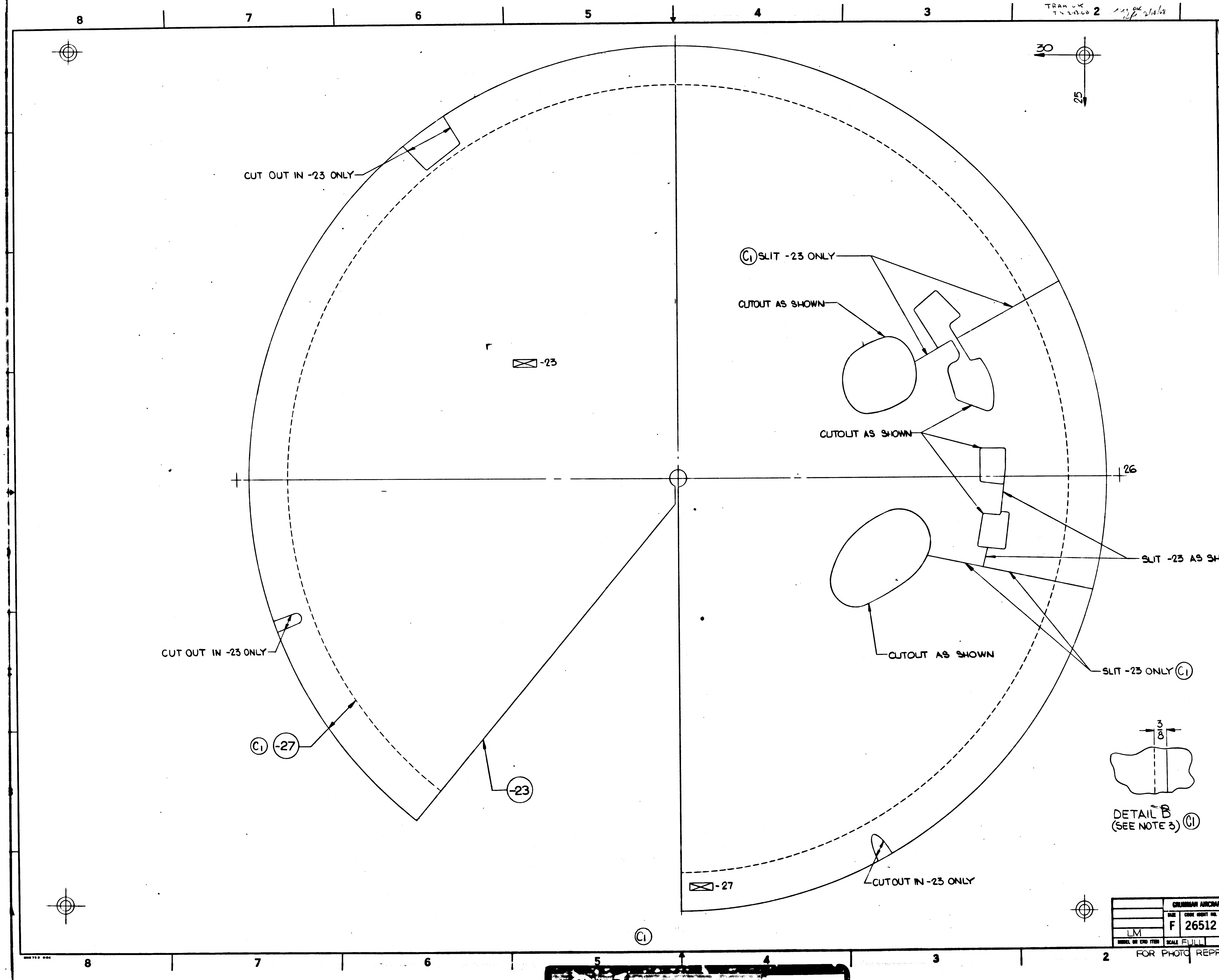
R GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
SIZE J
CODE IDENT NO. 26512
LDW280-18145
C G
SCALE FULL & NOTED
SHEET 3.00

FOR PHOTO REPRODUCTION

2F

280-18145 SH 3

LDW280-18145 SH 3


8
7
6
5
4
3
2
1
30
25
CUT OUT IN -23 ONLY
ⒸSLIT -23 ONLY
CUTOUT AS SHOWN
-23
CUTOUT AS SHOWN
26
SLIT -23 AS SHOWN
CUT OUT IN -23 ONLY
CUTOUT AS SHOWN
SLIT -23 ONLY Ⓒ
Ⓒ -27
-23
3/8
DETAIL B
(SEE NOTE 3) Ⓒ
CUTOUT IN -23 ONLY
-27
Ⓒ
8
7
6
5
4
3
2

~~MANUFACTURING OPERATIONS~~

~~UNLESS OTHERWISE SPECIFIED~~
~~NOTES CHECKED √ APPLY TO THIS DWG.~~

~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.~~

~~FILLET AND INSIDE CORNER RADII TOLERANCES~~
~~.016R TO .062R ± .010~~
~~.063R TO .250R ± .015~~
~~OVER .250R ± .030~~

~~DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.~~

~~EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.~~

~~DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.~~

~~MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.~~

~~DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING~~

~~HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.~~

~~ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES~~

~~125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10~~

~~200 √ FOR ALL DRILLED HOLES~~

~~REMOVE ALL BURRS. BREAK ALL EDGES .015-.031~~

~~INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS~~

~~SYMBOL √ DENOTES SURFACE TO BE MACHINED~~

~~UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32~~

~~LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.~~

~~TOLERANCE ON LOFTED DELINEATIONS IS~~

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18145	C
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

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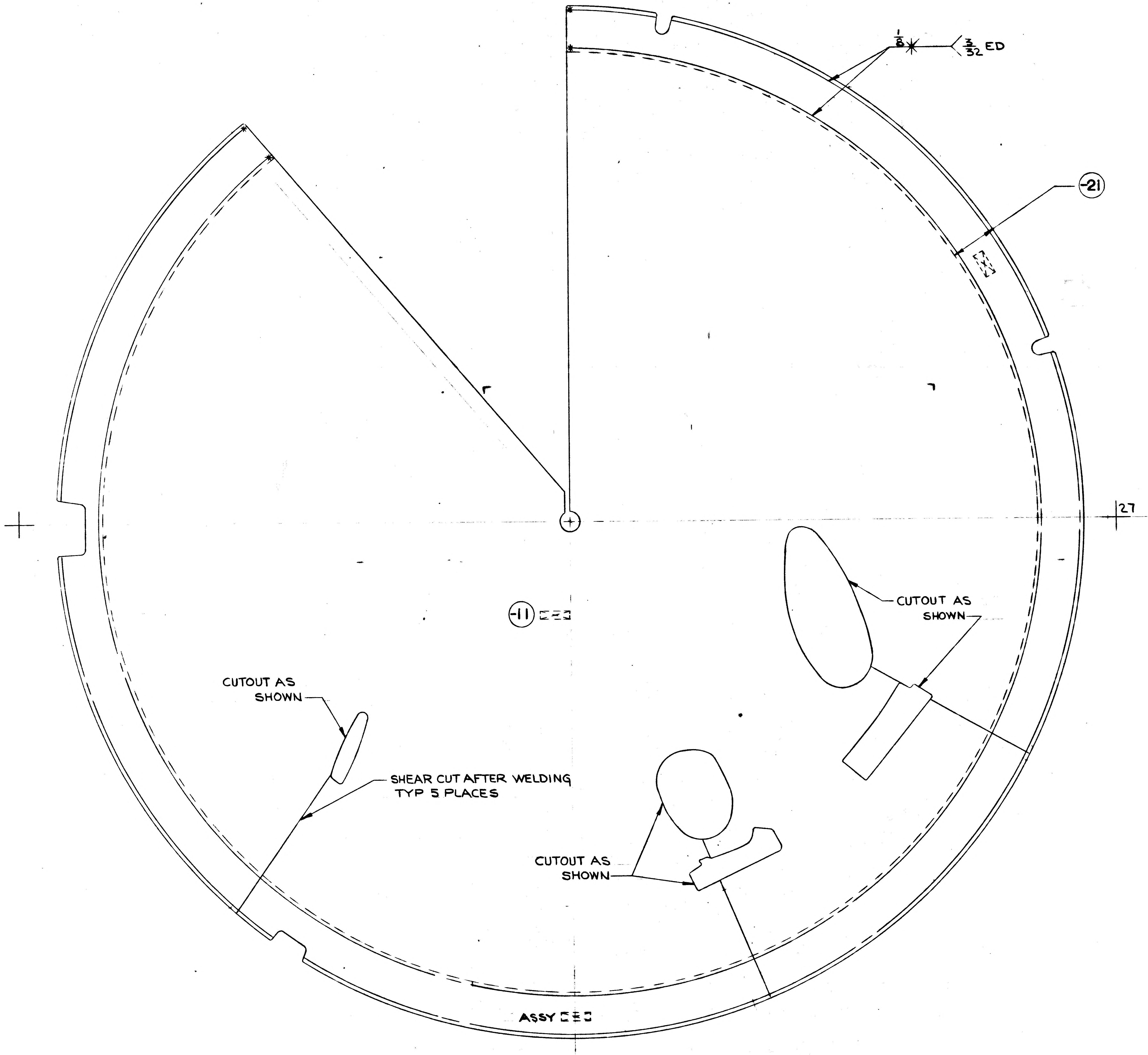
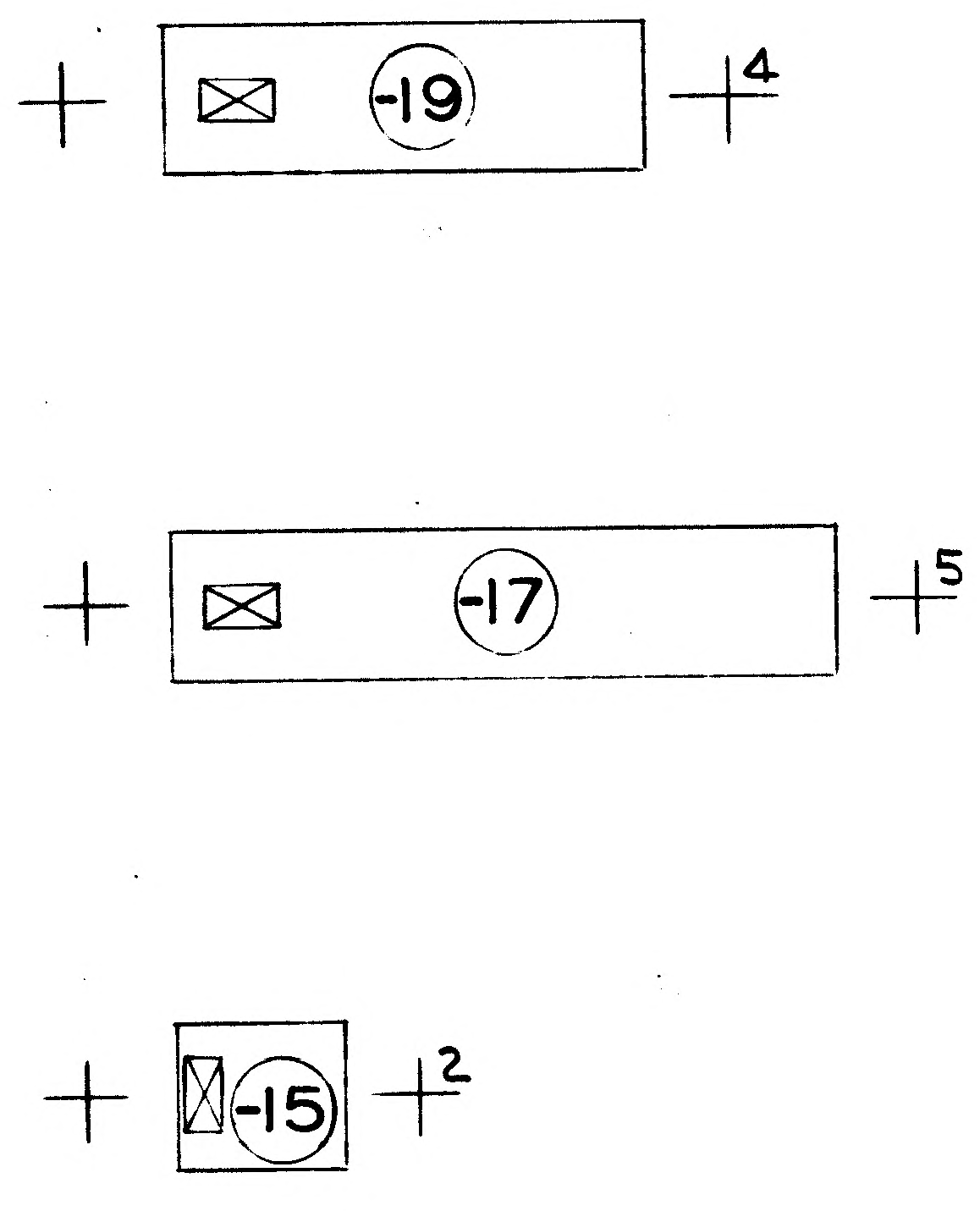
K2

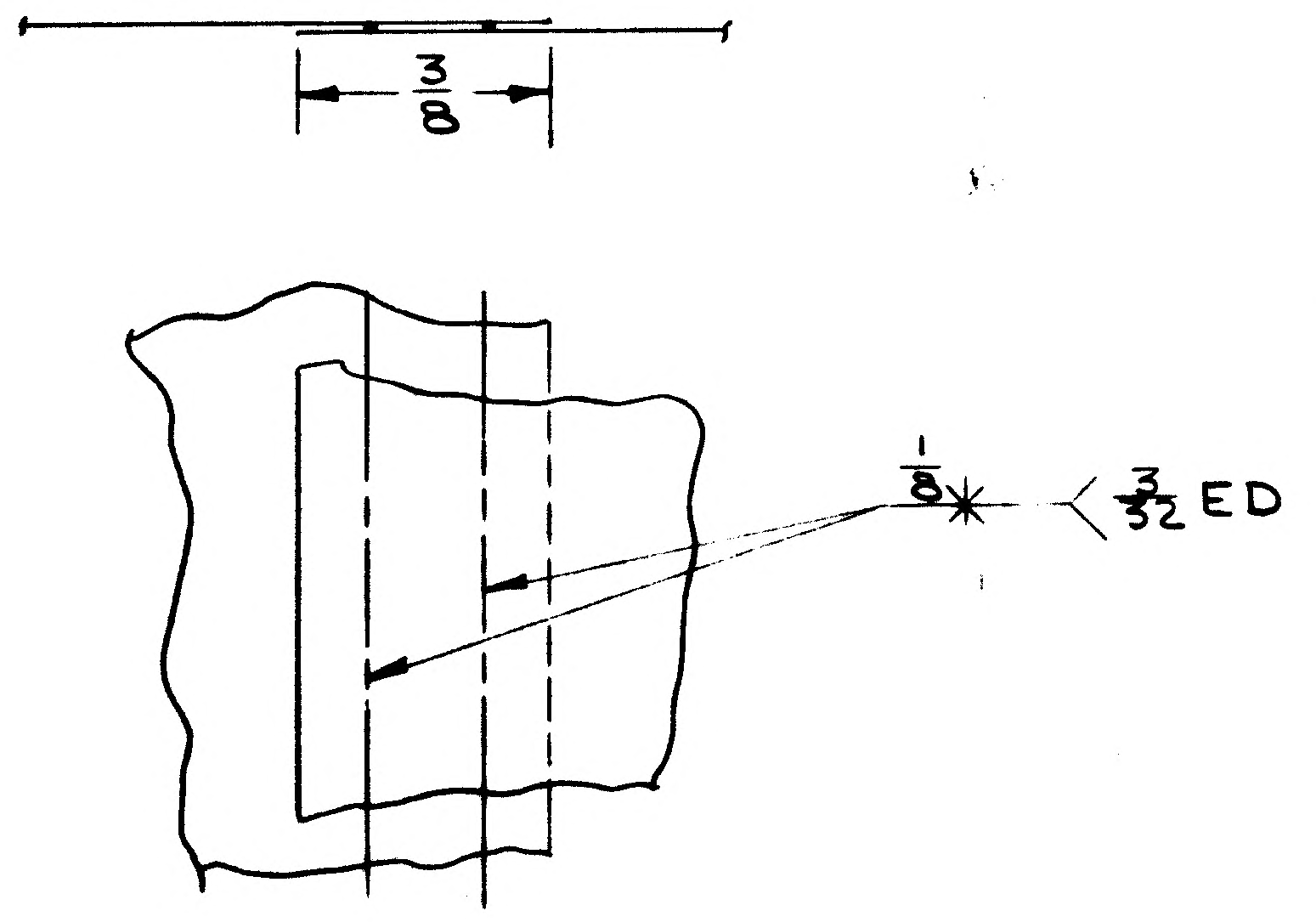
01 NAS 9-1100

D C B A

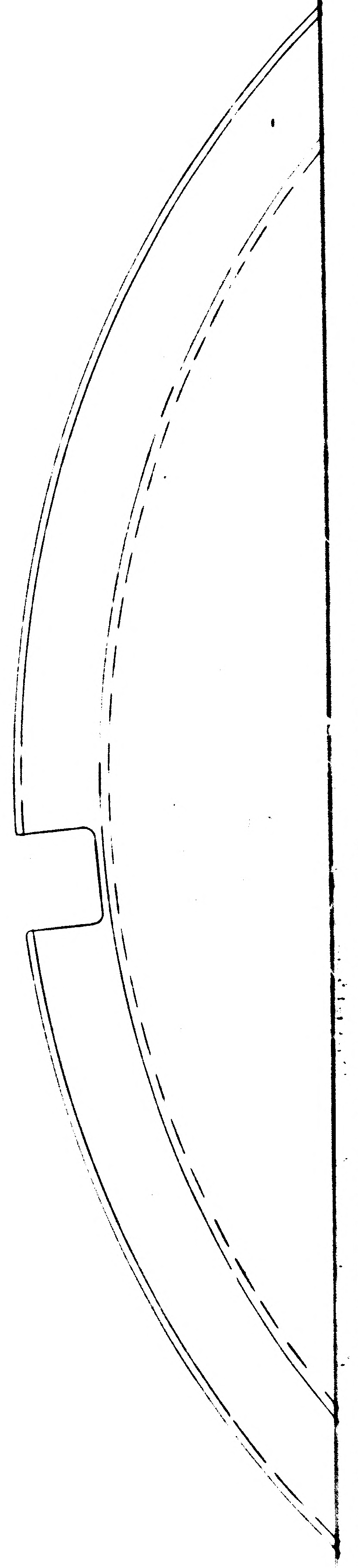

1/8 ✳ 3/32 ED
-21
-11
CUTOUT AS SHOWN
CUTOUT AS SHOWN
SHEAR CUT AFTER WELDING TYP 5 PLACES
CUTOUT AS SHOWN
ASSY
27

LDW280-18146-1 ASSY (A3)



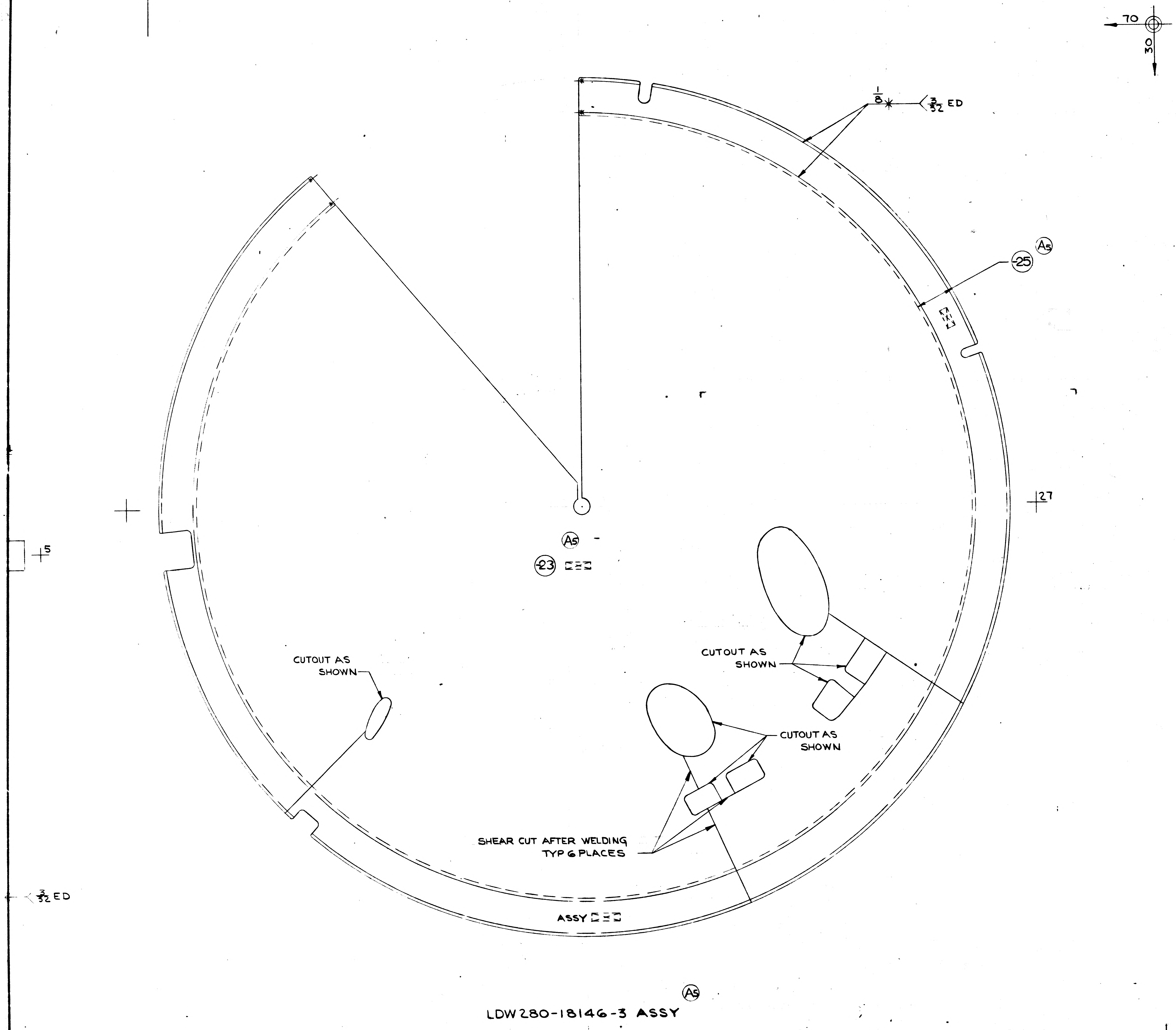


DETAIL A (A3)
NO SCALE



01/02 NAS 9-1100

LDW280-18146 SH 3



LDW280-18146-3 ASSY

NOTES:

1. WHERE PARTS ARE LARGER THAN THE BASIC STOCK SIZE OF AVAILABLE MATERIAL, SHEETS MAY BE SPLICED AS SHOWN BELOW. LOCATION, DIRECTION & NUMBER OF SPLICES OPTIONAL. SEE DETAIL A (ZONE 5A)
2. NO TOOLING HOLES PERMITTED IN PARTS.
3. IF -27 & -29 ARE LARGER THEN THE BASIC STOCK SIZE OF ORIGINAL MATERIAL, SHEETS MAY BE SPLICED AS SHOWN IN DETAIL B (SH 4.00), SHEETS ARE TO BE TAPED TOGETHER & THEN SPOT WELDED ON NEXT HIGHER ASSY. LOCATION, DIRECTION & NUMBER OF SPLICES OPTIONAL.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ. FT.

1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.5 SQ. FT.

PRINT TRIM LINE

D

C

B

A

LDW280-18146 A

LDW280-18146 A

02/02

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18146	A
MODEL OR END ITEM	SCALE FULL & NOTED		SHEET 3.00	

2FR

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K2

LDW280-18146 B

LM	LDW280-28839	LM-3 (33)	1
LM	LDW280-28839	LM-2 (32)	1
LM	LDW280-28839	LM-1 (31)	1
PART NO LDW280-18146-7			
LM	LDW280-28839	LM-5 (35)	2 EA
LM	LDW280-28839	LM-4 (34)	2 EA
LM	LDW280-28839	LM-3 (33)	2 EA
LM	LDW280-28839	LM-2 (32)	2 EA
LM	LDW280-28839	LM-1 (31)	2 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO	NEED PER MODULE OR END ITEM
PART NO LDW280-18146-15-19		EFF SCH NO 52	

LM	LDW280-28839	LM-5 (35)	1
LM	LDW280-28839	LM-4 (34)	1
LDW280-18146-27 & -29			
PART NO.			
LM	LDW280-28839	LM-3 (33)	1
LM	LDW280-28839	LM-2 (32)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO	NEED PER MODULE OR END ITEM
PART NO LDW280-18146-3		EFF SCH NO 52	

LM	LDW280-28839	LM-1 (31)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO	NEED PER MODULE OR END ITEM
PART NO LDW280-18146-1		EFF SCH NO 52	

WORK PKG FUNCTION NO. 110

SH REV STATUS FOR DESCRIPTION OF REV SEE SHEET

SHEET	100	110	200	300	400
REV	B	B	B	A	B
SHEET					
REV					
SHEET					
REV					

LAST SET LTR USED B

LAST DASH NO USED -29

GRUMMAN REPRINTS

PRINT NO 227

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/16 ±.020 ±1/2°

DWG CODE AUTH

DETAIL SPEC REQUIREMENT

CLASS I ENGRG CHANGE

CLASS II ENGRG CHANGE

LCD 2005

CONTRACT NO NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE

DRAWN BY ROESSLER

LAYOUT BY ROESSLER

CHECKED BY

GR LEADER STAMOSCH

E-DENT. P. SATER

STRUCT FEB

STRUCT

MECH-TS

PROJ ENGR R.W. JAGGERS

REL GROUP TAJUANA

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE L.I. NEW YORK

SHIELD ASSY
DESCENT STAGE PROP TANK SYS
METEOROID PROTECTION LM

SIZE B | CODE IDENT NO 26512 | LDW280-18146 B

SCALE NONE | SHEET 1 OF 5

SUPERSEDES LDW280-18146 NC

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REV N.C. LOFTED DWG WAS DIM DWG. ADDED SH 1.10 TMACAULAY 8-9-67						
A	1	300						LEO280-406	ADDED NOTE #1	LM-1 (31) THRU LM-15 (45)	NOT	REQD	TMACAULAY 8-9-67		8/24/67
	2	300							REF LEO 280-406 ADDED DETAIL "A".						
	3	1.00 3.00 2.00				√		LCD 2008	REVISED -11 & -21 PER SHOP TEMPLATE. ON -11 RESTRICTED EFF. WAS LM-1, LM-2 & LM-3. ON -21 RESTRICTED EFF WAS LM-1 THRU LM-15. ADDED -1 ASSY.	NOTED		-11 -21			
	4	1.00				√			REMOVED -13 WAS EFF ON LM-4 THRU LM-15. ON -15 & -19 REVISED EFF WAS LM-1 THRU LM-15.	NOTED		-13 -15 -19			
	5	3.00				√			ADDED -3 ASSY, -23 & -25.	LM-2 (32) LM-3 (33)	NOT	REQD			
	6	300				√			ADDED NOTE #2	NOT REQD	NOT	REQD			
B	1	1, 1.10, 2 & 4		P		√		LCD 2008 OK	ADDED LDW280-18146-27 & -29. ON -15 & -19 ADDED LM-4 & LM-5 EFF ADDED SH 4, DETAIL "B" & NOTE 3	LM-4 & LM-5	NOT	REQD	NARCWIS 2-13-68		

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS
A					
B					

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18146	B
SCALE	NONE		SHEET 1.10

ENG 77.3 5-66

01

NAS 9-1100

					-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18146-29	E	STRIP	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004×26×26	SWT	NONE	
								-27		SHIELD				.004×26×26	SWT		
								-25		STRIP				.004×26×26	NONE		
						1		-21		STRIP				.004×25×26			
								-19		STRIP				.004×1×3			
								-17		STRIP				.004×1×4			
								-15		STRIP				.004×1×1			
					1			-23		SHIELD				.004×25×26			
						1		LDW280-18146-11		SHIELD	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004×25×26	NONE	NONE	
								LDW280-18146-3	I	SHIELD ASSY (WELDED)					F-W/SWT	NONE	3A
								LDW280-18146-1	E	SHIELD ASSY (WELDED)					F-W/SWT	NONE	7A

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						F-W	FOIL WELDING	LSP14-6102
						SWT	SEALING (SW	LSP14-4400

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18146	3

②

SCALE NONE

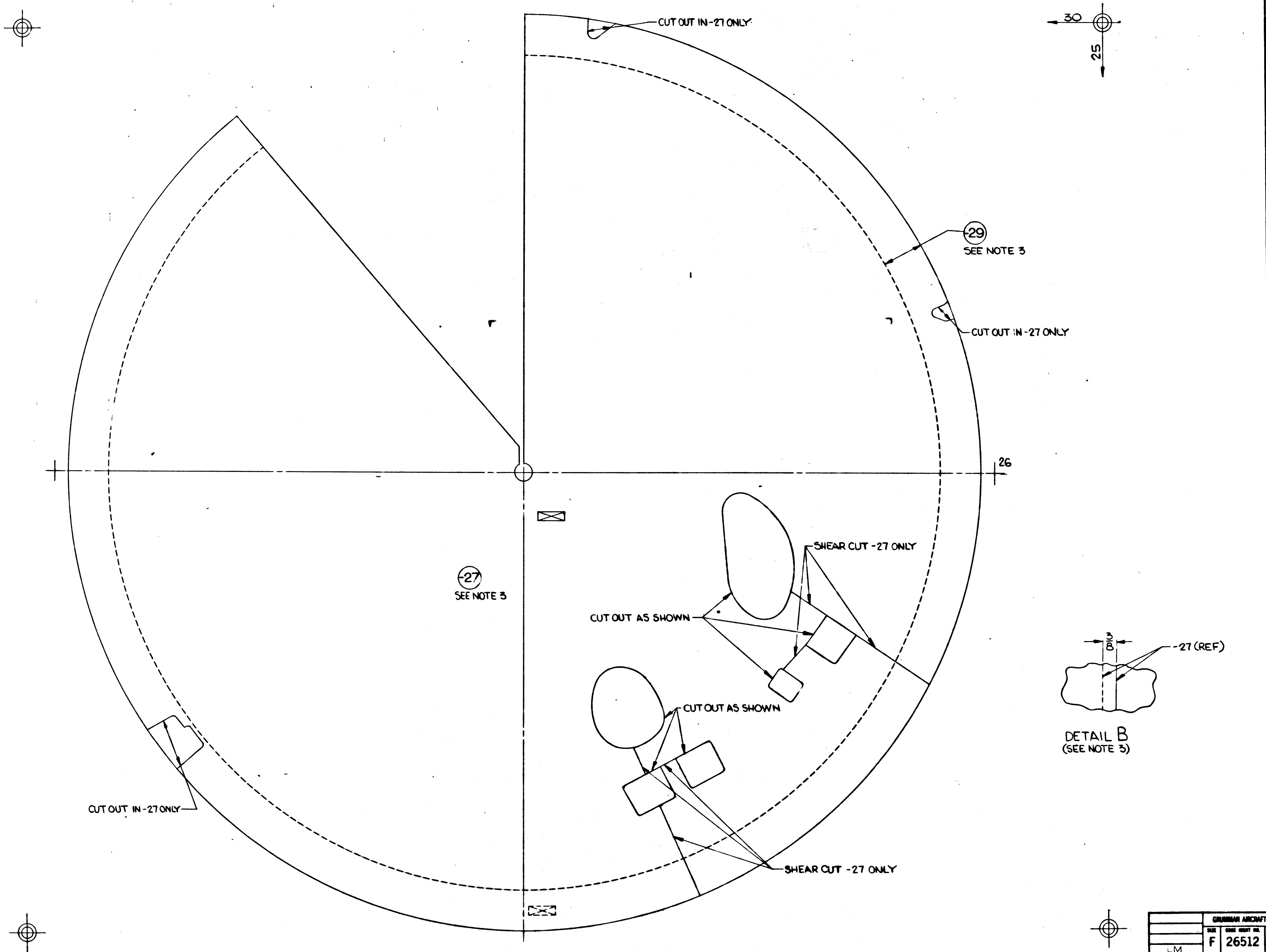
SHEET [illegible]

ENG 77.2 7-65

01

NAS 9-1100

TRAM OK
T.S. 2-13-68


CUT OUT IN -27 ONLY
30
25
29
SEE NOTE 3
CUT OUT IN -27 ONLY
26
SHEAR CUT -27 ONLY
-27
SEE NOTE 3
CUT OUT AS SHOWN
.015
-27 (REF)
CUT OUT AS SHOWN
DETAIL B
(SEE NOTE 3)
CUT OUT IN -27 ONLY
SHEAR CUT -27 ONLY

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.015R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18146	B
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

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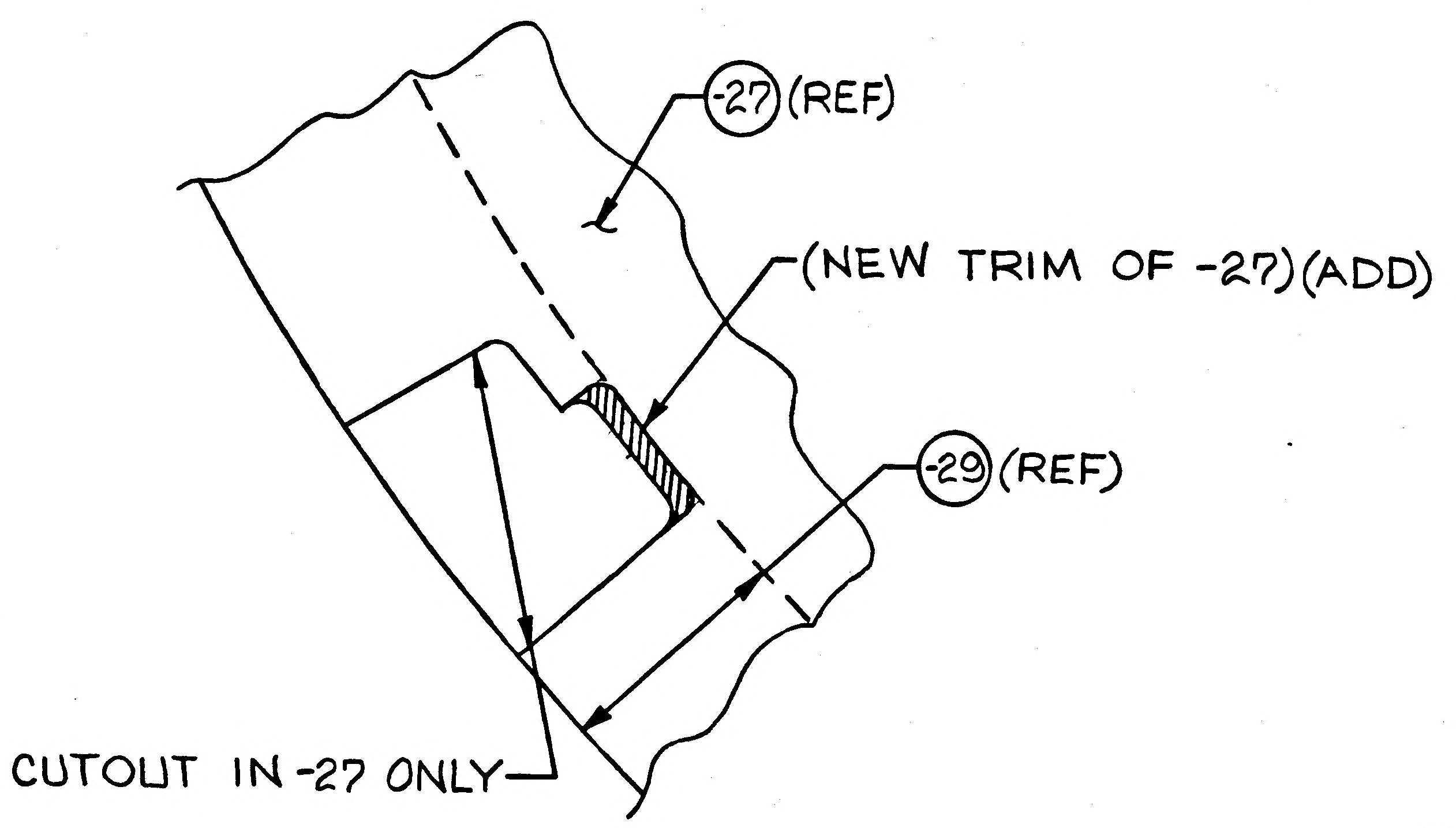
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18146	EO NO.	C1
CONTROL INFO NO.	LM-2-4680		



TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 2008 (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INSUFFICIENT SURFACE FOR PROPER SPOTWELDING AT NEXT ASSEMBLY	FOR -27, IN FLD/DWG. REVISED CUTOUT	VL

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		LM-5(35)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: ✓ REWORK ☐ SCRAP

APPROVED BY								
DATE	5/2/68			—	4/30/68	4/29/68	5/2/68	4-30-68
	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO.
C	SHIELD ASSY~D/S~PROP. TANK COVER~METEORIOD PROTECTION, L.H.	LDW280-18146	C1

ISSUED BY LIAISON J. MALONEY 4/30/68 x3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18166 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23591	LM-3(33)	1
LM	LDW280-23591	LM-2(32)	1
PART NO. LDW280-18166-11		GAEC SCH NO. 501	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A		
LAST DASH NO. USED	-11	PRIM NO. 233	16(001) MP-14	A-11-21-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	P. Como 11-16-66	WEIGHTS	
LAYOUT BY	G BARNES	RELIAB.	
CHECKED BY	R. SMITH 11-18-66		
~~GR. LDR~~			
VEH DES INT	11/18/66		
STRUCT	11/21/66	PROJ ENGR	R.M. Carbee 11-21-66
STRUCT		REL GROUP	11/21/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE-LANDING RADAR
ELECTRONIC REPLACEABLE ASSY CONN.

SIZE	CODE IDENT NO.		
B	26512	LDW280-18166	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00 1.10 2.00 3.00						EO A1	EO A1 INITIAL DRAWING RELEASE PART MADE PER EO	LEM-2,-3	NOT REQD		RMS P. Como 11-18-66	RMS	AC 1-21-66

CHG APPROVED	LTR	~~GROUP LDR~~	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIAB
	A		11/14/66	11/21			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18166	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18166-11	E	BRACKET	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 X 4 X 11	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18166	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

01

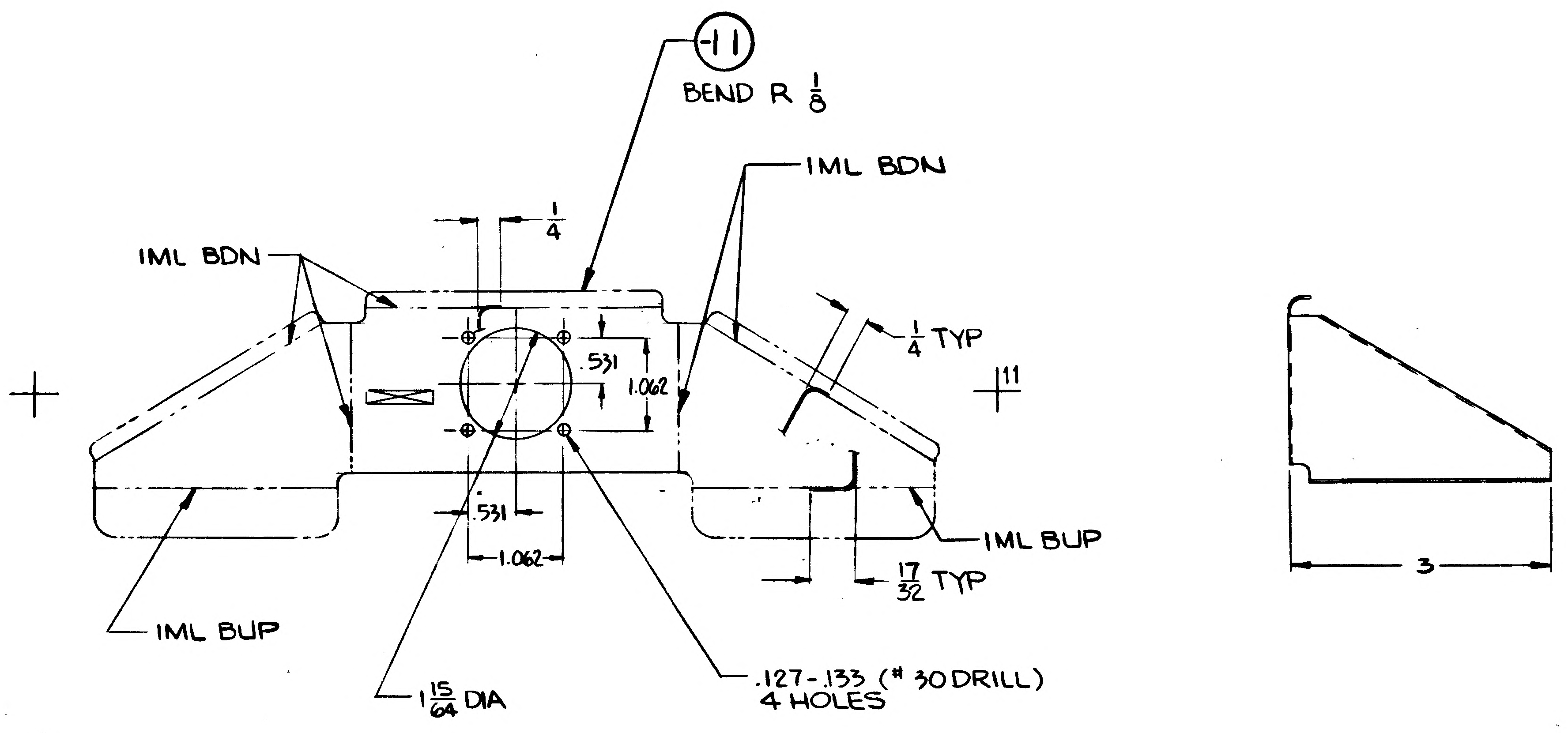
NAS 9-1100

TR OK WM

25

20

NOTES:
1. NO TOOLING HOLES PERMITTED IN PART.



MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18166 A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18166	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

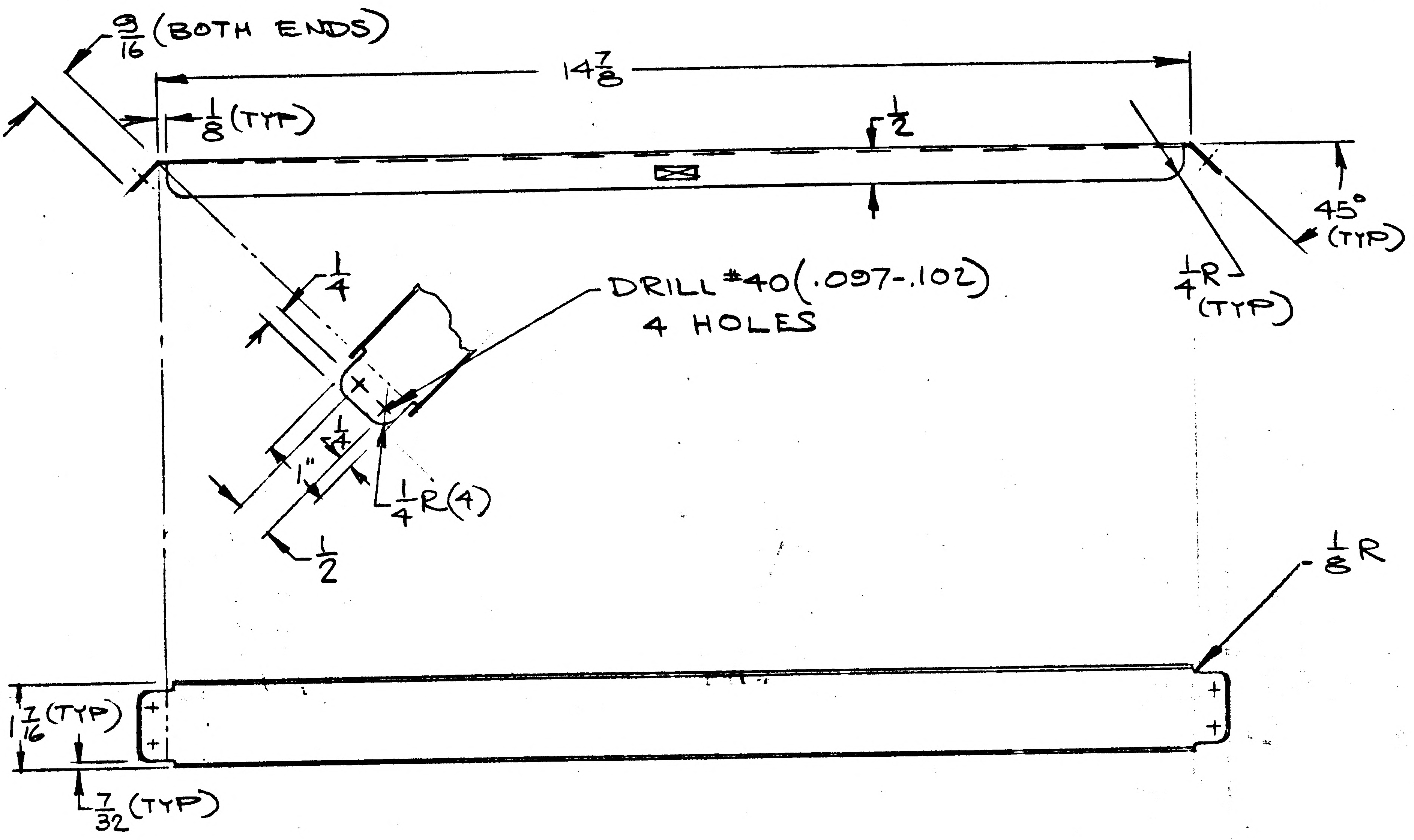
K2

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18166
EO NO. B1
CONTROL INFO NO. LDW280A3318



$\frac{9}{16}$ (BOTH ENDS)
$14\frac{7}{8}$
$\frac{1}{8}$ (TYP)
$\frac{1}{2}$
45° (TYP)
$\frac{1}{4}$R (TYP)
DRILL #40 (.097-.102)
4 HOLES
$\frac{1}{4}$
$\frac{1}{4}$
1"
$\frac{1}{4}$R (4)
$\frac{1}{2}$
$\frac{1}{8}$R
$1\frac{7}{16}$ (TYP)
$\frac{7}{32}$ (TYP)

ADD LDW280-18166-13 BRACKET BEND R $\frac{1}{8}$
MATL: 2024-T3 AL ALY SH .040 THK
QQ-A-250/4 FIN 88 I&T=E
N/A LDW280-52791 EFF LM-2 & LM-3 1/MOD

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL SUPPORT FOR ELECTRICAL LINES	IN F/D, B/M & MOD/BLK ADDED -13	11/22

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-2 (32)	
LM		LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQD

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	11/16/66				11/15/66		11-17-66	11/19/66
	YDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D.S. LANDING RADAR ELECTRONIC REPL ASSY CONNECTOR	LDW280-18166	B1

ISSUED BY G. BARNES / J. STRAKOSCH X1392 SECTION VEH DES & INT GROUP NO. 335 PL 35

01
NAS 9-1100

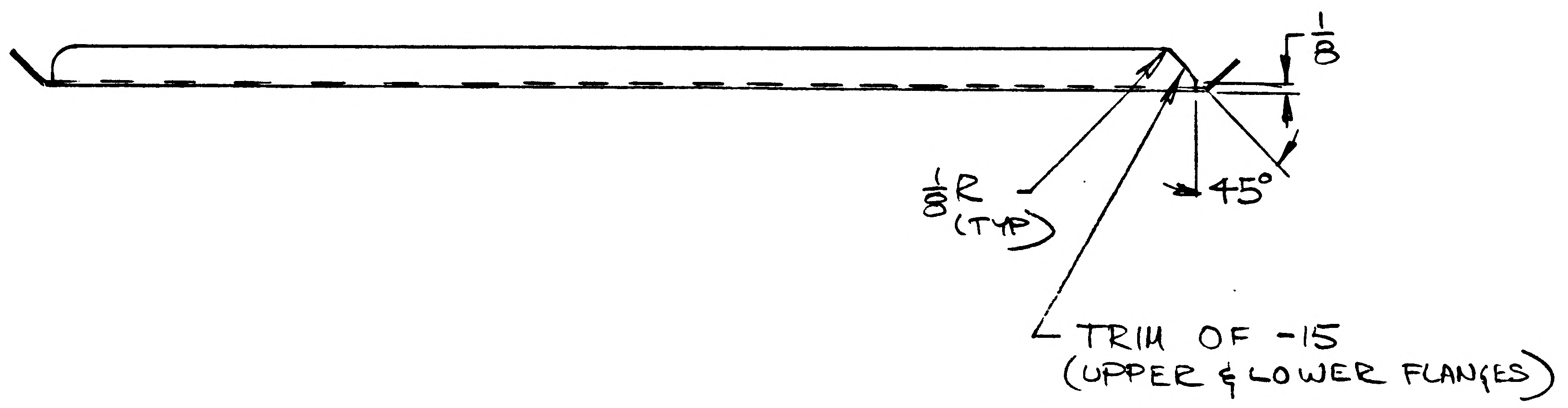
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18166	EO NO. B2
CONTROL INFO NO. LDW280A 3997	

ADD -15 IDENT TO -13 EXCEPT AS SHOWN
-15 EFF ON LM-2(32) & LM-3(33) N/A LDW280-52791 1/MOD



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	2

REASON FOR EO: ADDITIONAL SUPPORT FOR ELECTRICAL LINES

DESCRIPTION OF EO: IN F/D, B/M & MOD/BLK ADDED -15

Ⓡ GAEC EO RELEASE: FR 12/14/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32) & LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY							
DATE	12/1/66				12/1/66		12-6-66 12/8/66
5	YDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D.S. LANDING RADAR ELECTRONIC ASSY CONNECTOR BRACKET REPL	LDW280-18166	B2

ISSUED BY G. BARNES / J. STRAKOSCH X1392 SECTION YDI GROUP NO. 335 PL 35

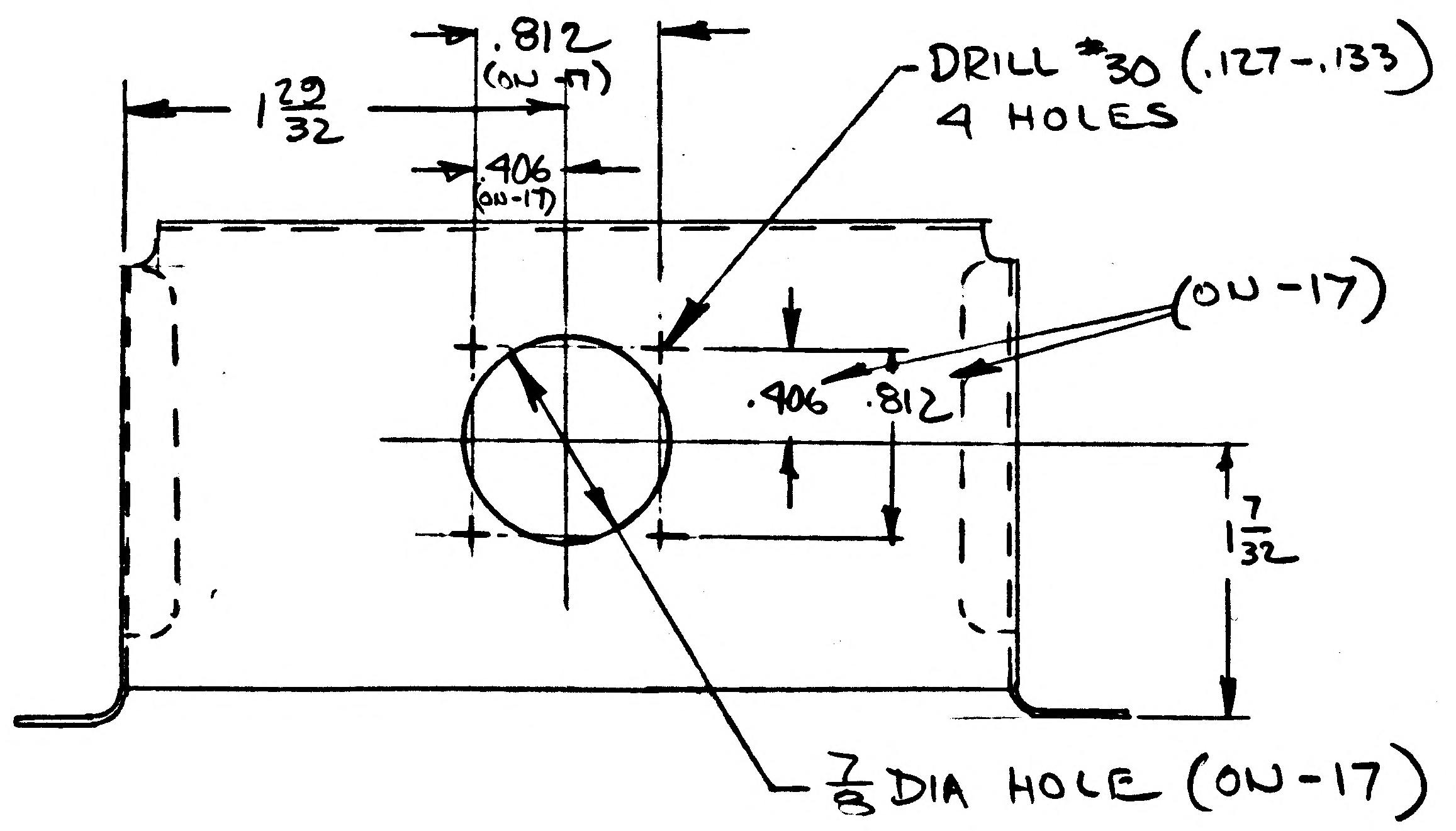
01 NAS 9-1100

A

ENG 32.1

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18166 EO NO. B3
CONTROL INFO NO. LDW280A 4730



ADD LDW280-18166-17 IDENT TO LDW280-18166-11 EXCEPT AS NOTED
-17 EFF ON LTA-8(18) N/A LDW280-25591 1/MOD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REQTS FOR ADDITIONAL CONNECTOR FOR LANDING RADAR ELECTRONIC ASSY	IN F/D, B/M & MOD/BLK ADDED -17	FR 1/7/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY									
✓		NOT	REQD	DATE				1/6/67	1/6/67		1-6-67	1-6-67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D.S. LANDING RADAR ELECTRONIC ZEPL ASSY CONNECTOR	LDW280-18166	B3

ISSUED BY BARNES/ J. STRAKOSCH X1392 SECTION VDI GROUP NO. 335 PL 35

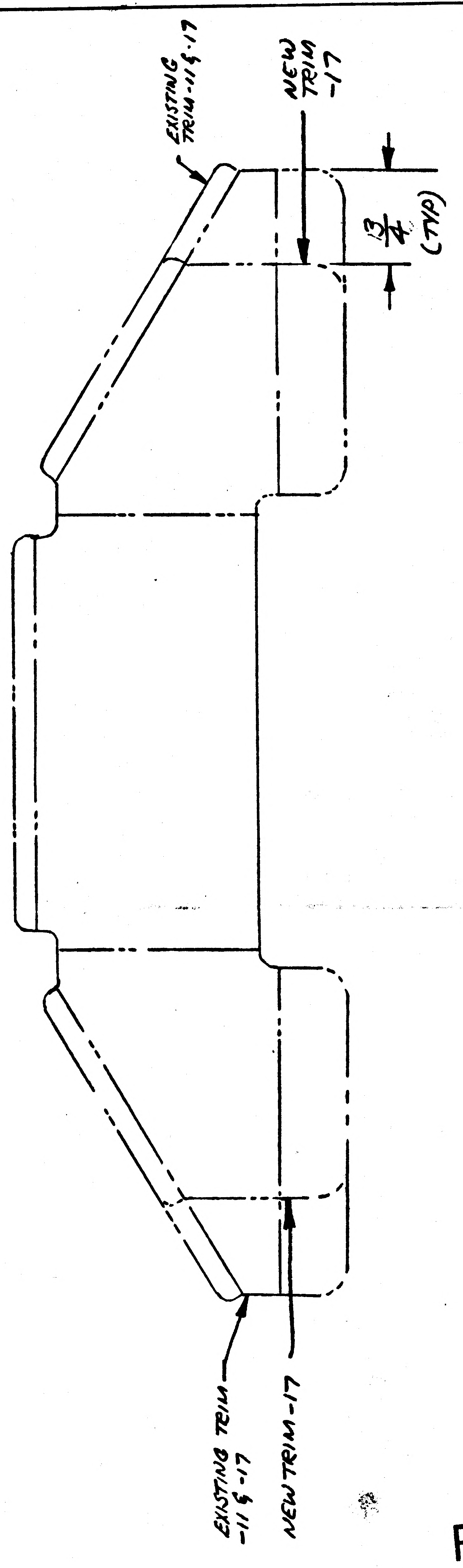
01 NAS 9-1100

ENG 22.2 REV 3-65

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18166
EO NO. B4
CONTROL INFO NO. LM-5-11568



REVISE TRIM OF LDW280-18166-17 AS SHOWN
(DIM FOR EO ONLY)
IN AUX VIEW RESTRICT 3" DIM TO -11
ADD $2\frac{1}{4}$" DIM FOR -17

RELEASED BY LIAISON

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO ALLOW USE OF REL GP 7 PART ON LTA-8

DESCRIPTION OF EO: REVISED TRIM -17

① GAEC ✓ EO RELEASE: LE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	WT			~	CW	CH	RM	RF	
DATE	1/10/67			~	1/10/67	1-12-67	1-13-67	1/12/67	
1	VD1	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET - DIS - LANDING ~~RADAR~~ ELECTRONIC REPLACEABLE ASSY CONN	LDW280-18166	B4

ISSUED BY E.J. COMISKEY, NITG 6510 X6454 SECTION VD1 GROUP NO. 335 PL 5

01

NAS 9-1100

LDW280-18168

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28746	LM-15(95)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11 (41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	1
		LM-2(32)	1
LM	LDW280-28746	LM-1(31)	1
PART NO. LDW280-18168-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51830	LM-15(45)	2 EACH
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11 (41)	
		LM-10(40)	
		LM-9 (39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
		LM-3(33)	
		LM-2(32)	
LM	LDW280-51830	LM-1(31)	2 EACH
PART NO. LDW280-18168-11,-13,-15		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO

PRIM NO. 220 | E001 MP-14 11/15/6 | EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/32 ±.030 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9- 1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	J. BACKOFEN 11/8/66	RELIABILITY	
LAYOUT BY	J. BACKOFEN	THERMO	11/10/66
CHECKED BY			
GR LEADER	11/8/66		
VEH DES INT	G. Pusateri 11/9/66		
STRUCT.	NM 11/11	PROJ ENGR	11/12
STRUCT.		REL GROUP	J. Tagliani 11/15/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ~ DESCENT STAGE ~
QUAD IV GUILLOTINE
ACCESS COVER

SIZE B | CODE IDENT NO. 26512 | LDW280-18168
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

C.D.R. = 11/11/66

01 NAS 9-1100

C.L.	QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C			LDW280-18168-17	E	ANGLE	MAKE FROM LDW280-17950-43 FOIL.						
C			-15		FOIL							
C			-13		FOIL							
C			LDW280-18168-11	E	COVER	MAKE FROM LDW280-17950-43 FOIL.				NONE	NONE	

C.L. = CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18168

SCALE NONE | SHEET 2.00

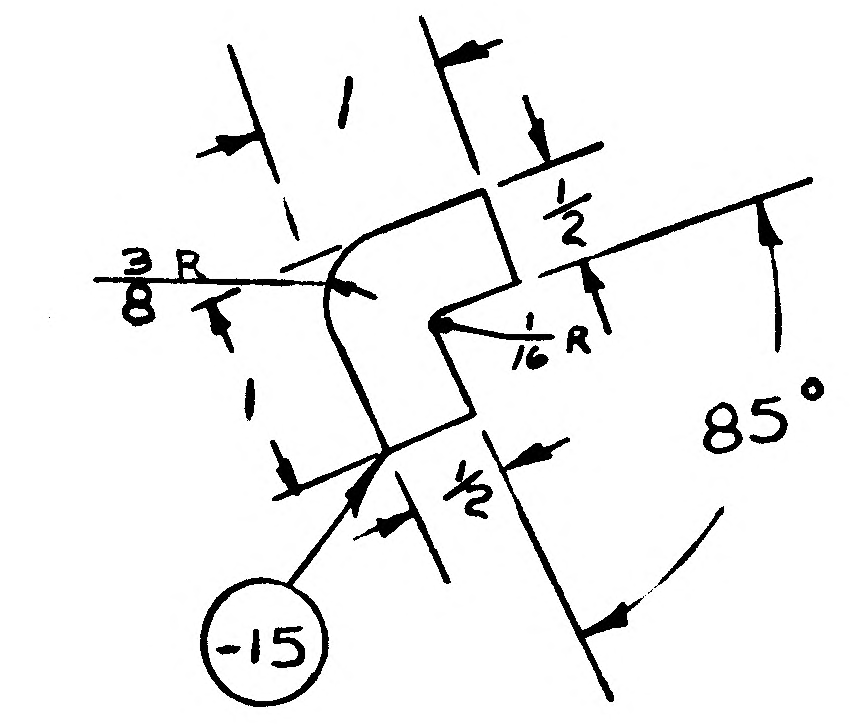
ENG 77.2 7-65

01

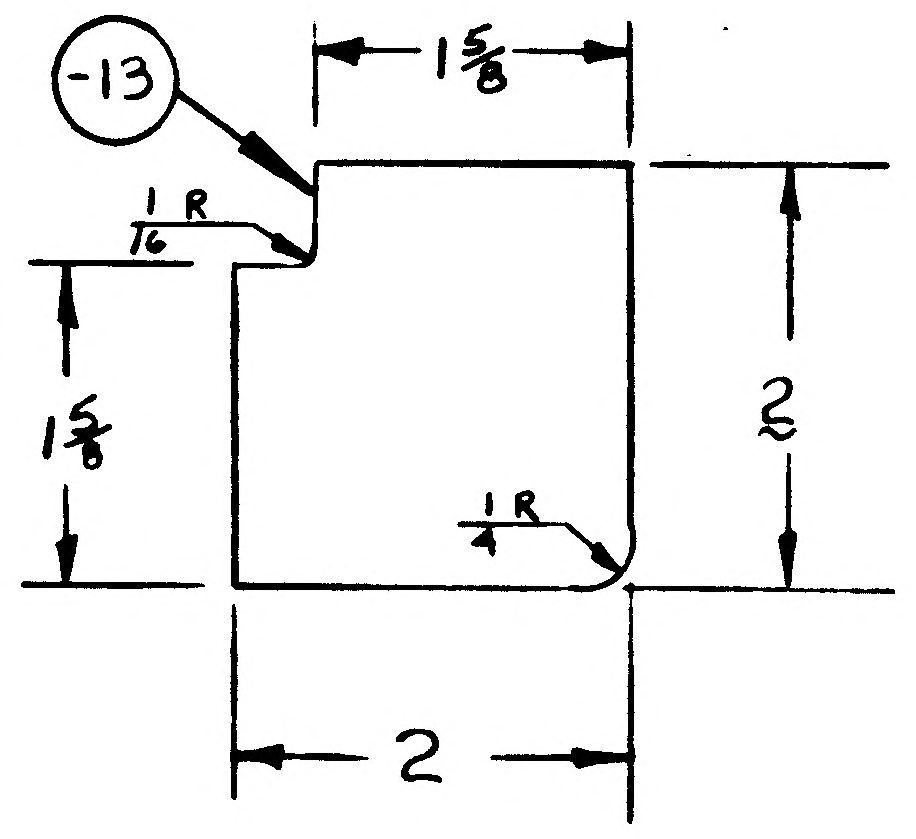
NAS 9-1100

LDW280-18168

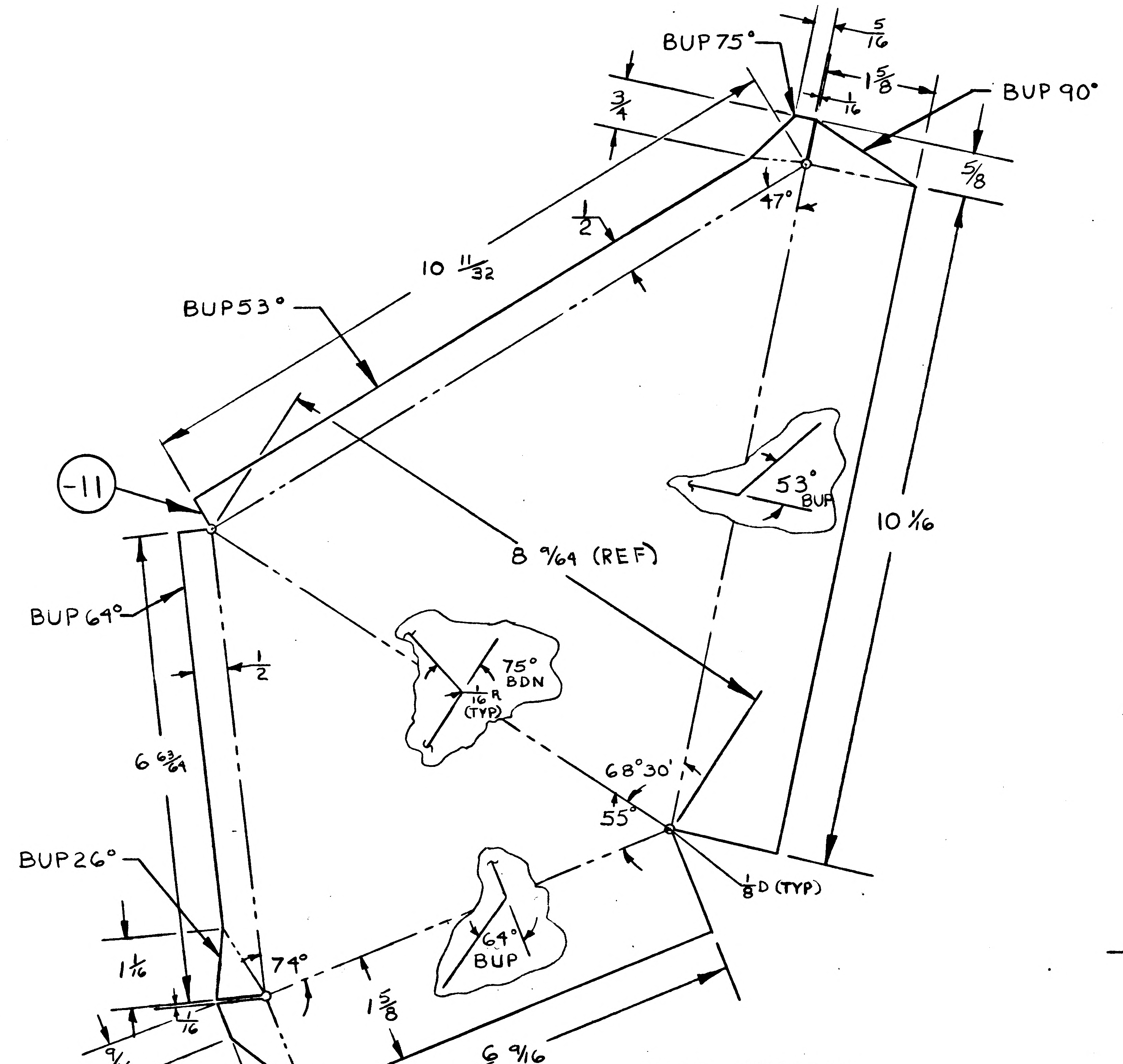
NOTE:
1. NO TOOLING HOLES PERMITTED IN PART.



1
1/2
3/8 R
1/16 R
1
1/2
85°
-15

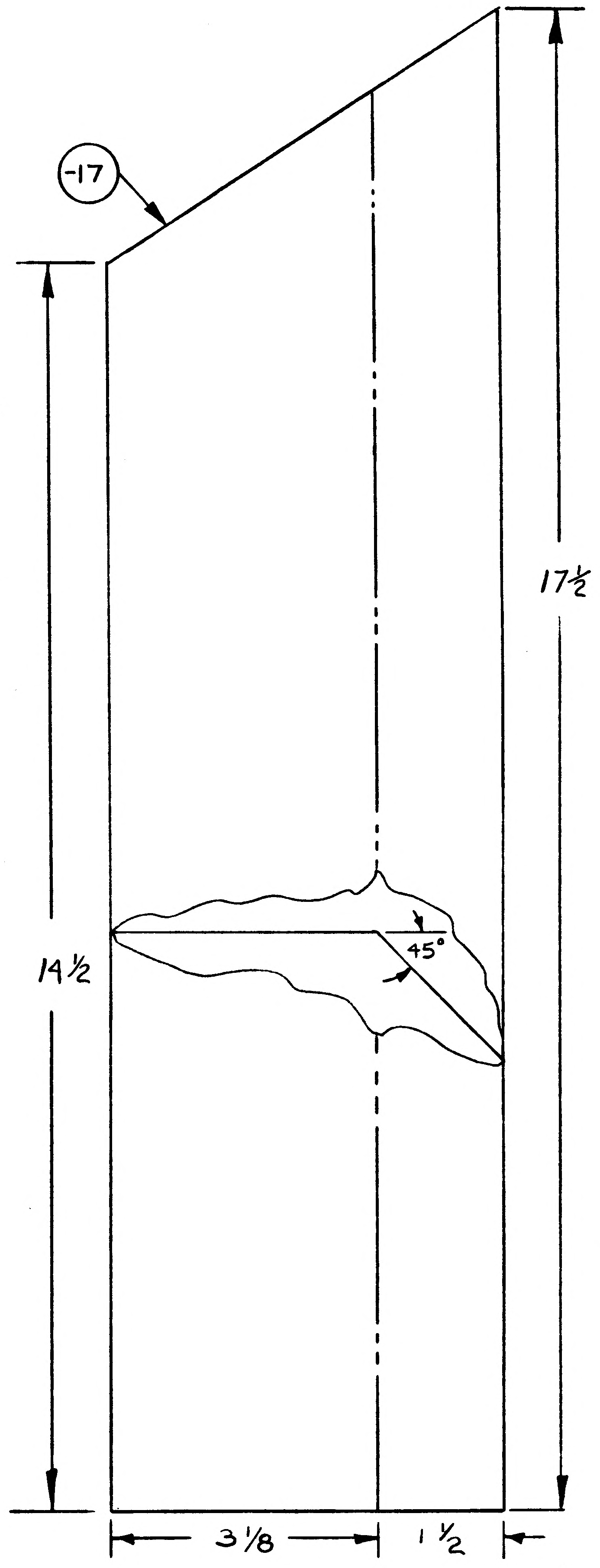


-13
1 5/8
1/16 R
1 5/8
1/4 R
2
2



BUP 75°
5/16
1 5/8
1/16
BUP 90°
3/4
5/8
47°
1/2
10 11/32
BUP 53°
-11
8 9/64 (REF)
53° BUP
10 1/16
BUP 64°
1/2
75° BDN
1/16 R (TYP)
6 63/64
68°30'
55°
1/8 D (TYP)
BUP 26°
64° BUP
74°
1 1/16
1/16
1 5/8
9/16
BUP 90°
6 9/16
1 1/4
11/16

FLAT PATTERN
LDW280-18168-11



-17
17 1/2
14 1/2
45°
3 1/8
1 1/2

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

LDW280-18168

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

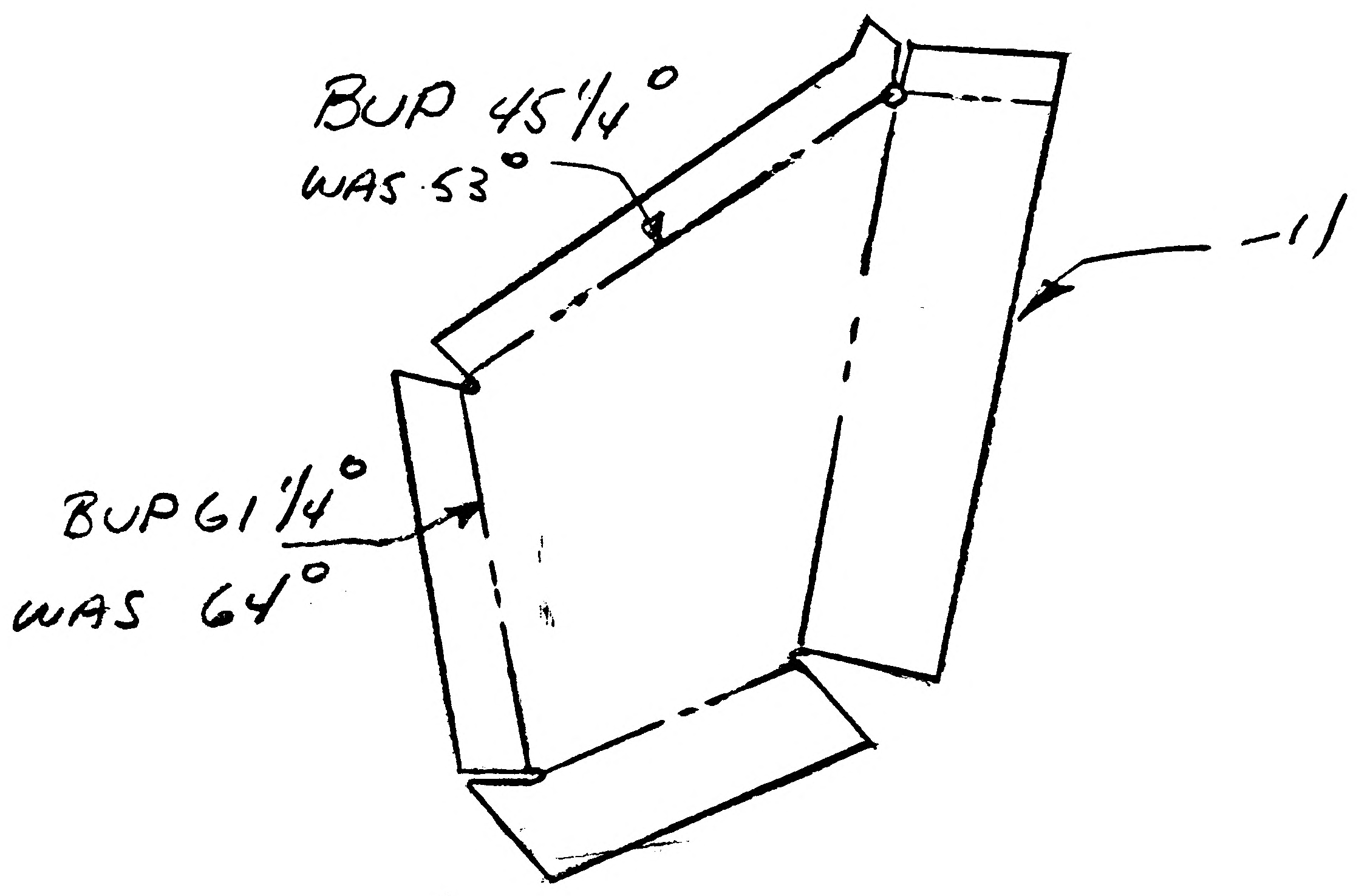
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18168
MODEL OR END ITEM	SCALE FULL		SHEET 5.00

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18168
EO NO. 41
CONTROL INFO NO. LDW280 A-4025



2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: DRAWING ERROR

DESCRIPTION OF EO:
ON -11 BUP 45 1/4° WAS 53°
BUP 61 1/4° WAS 64°

GAEC EO RELEASE: FR 12/7/66
HTW 12-7-66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1-15 (31)-(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK ✓	SCRAP

APPROVED BY								
DATE	12/5/66			12/5/66	12/6/66		12-6-66	12-7-66
1	VD1	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONF~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FOIL D/S QUAD IV GUILL. ACC	LDW280-18168	A1

ISSUED BY J. STRAKOSCH 1153 SECTION VD1 GROUP NO. 335 PL 35

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LE0280
EO NO. 705
CONTROL INFO NO. LDW280A 8997

IN M/B RESTRICT THE FOLLOWING PARTS FOR USE AS SHOWN.

DWG No	DASH No*	**REST. FOR USE ON	***WAS USED ON	CH. LTR	TITLE
✓LDW280-18125	-15,-17&-18	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	↑
✓LDW280-18130	-11,-13&-14	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	A8	
✓LDW280-18168	-17	LM-1 & LM-2	LM-1 THRU LM-15	A2	
LDW280-28730	-21	LM-2	LM-2 & LM-3	B8	
LDW280-28737	-15,-17,-19 -21,-25&-27	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	SEE DWG
	-35	LM-1 & LM-2	LM-1 THRU LM-15		
LDW280-28738	-9	LM-1 & LM-2	LM-1 THRU LM-15	A8	
LDW280-28746	-15&-31	LM-1 & LM-2	LM-1 THRU LM-15	B4	
LDW280-28747	-13	LM-1 & LM-2	LM-1 THRU LM-15	B5	
LDW280-28755	-13	LM-2	LM-2 THRU LM-15	A8	
LDW280-28756	-13	LM-2	LM-2 THRU LM-15	C1	↓

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1244 ok 5

REASON FOR EO: PROVISIONS FOR FITH SHIELD

DESCRIPTION OF EO: FOR * NOTED DWGS RESTRICTED DASH No * TO ** WAS ***.

GAEC EO RELEASE: JK 9/1/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JAP			JHS	WH		WLB	
DATE	8/31/67			8/30/67	9/1/67		9/1/67	9/1/67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LE0280

EO NO.: 705

9/1 ISSUED BY G. ZEMAN/J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18168
EO NO. A3
CONTROL INFO NO. LDW280B0027

RESTRICT -11, -13 & -15 TO LM-1 & LM-2
(WAS) LM-1 THRU LM-15

FITH

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1244

5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW SHIELD INSTL CREATED FOR LM-3 THRU LM-15	RESTRICTED -11, -13 & -15 TO LM-1 & LM-2 REMOVED LM-3 THRU LM-15 EFF.	C 11/30/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	11/29/67			11-29-67	11/29/67		11/29/67	11-29-67
REVISE DWG	RECORD EO	REWORK	SCRAP	P	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FOIL - D/S QUAD IV - GUILLOTINE ACCESS COVER	LDW280-18168	A3

G.Z. 120167
ISSUED BY ROESSLER / THORJUSEN x1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18169

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51829	LM-15(45)	1 EACH
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
		LM-3(33)	
		LM-2(32)	
LM	LDW280-51829	LM-1(31)	1 EACH

PART NO. LDW280-18169-11,-13,-15
GAEC SCH NO. 52

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH				
SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED
LAST DASH NO. USED -15
GRUMMAN REL INFO
PRIM NO. 220 VE(001) MP-14 11/15/6 EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.030 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY J. BACKOFEN 11/7/66
LAYOUT BY J. BACKOFEN
CHECKED BY
GR LEADER 11/8/66
V D I J. Pusateri 11/9/66
STRUCT NM 6B 11/11
STRUCT.
WEIGHTS
RELIABILITY
THERMO 11/12/66
PROJ ENGR RM Bailey 11-12
REL GROUP 11/15/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN~DESCENT STAGE~
QUAD IV GUILLOTINE
ACCESS COVER

SIZE B
CODE IDENT NO. 26512
LDW280-18169
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR - 11/11/66

01 NAS 9-1100

C.L.	QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C									LDW280-18169-15	E	SKIN	SEE NOTE 2			.0005 X 2 X 2			
C									LDW280-18169-13	E	SKIN	SEE NOTE 2			.0005 X 3 X 3			
C									LDW280-18169-11	E	COVER	MAKE FROM	LDW280-17970-47		(SKIN)	NONE	NONE	

C.L. = CLEANLINESS LEVEL PER LSP14-011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18169
SCALE NONE
SHEET 2.00

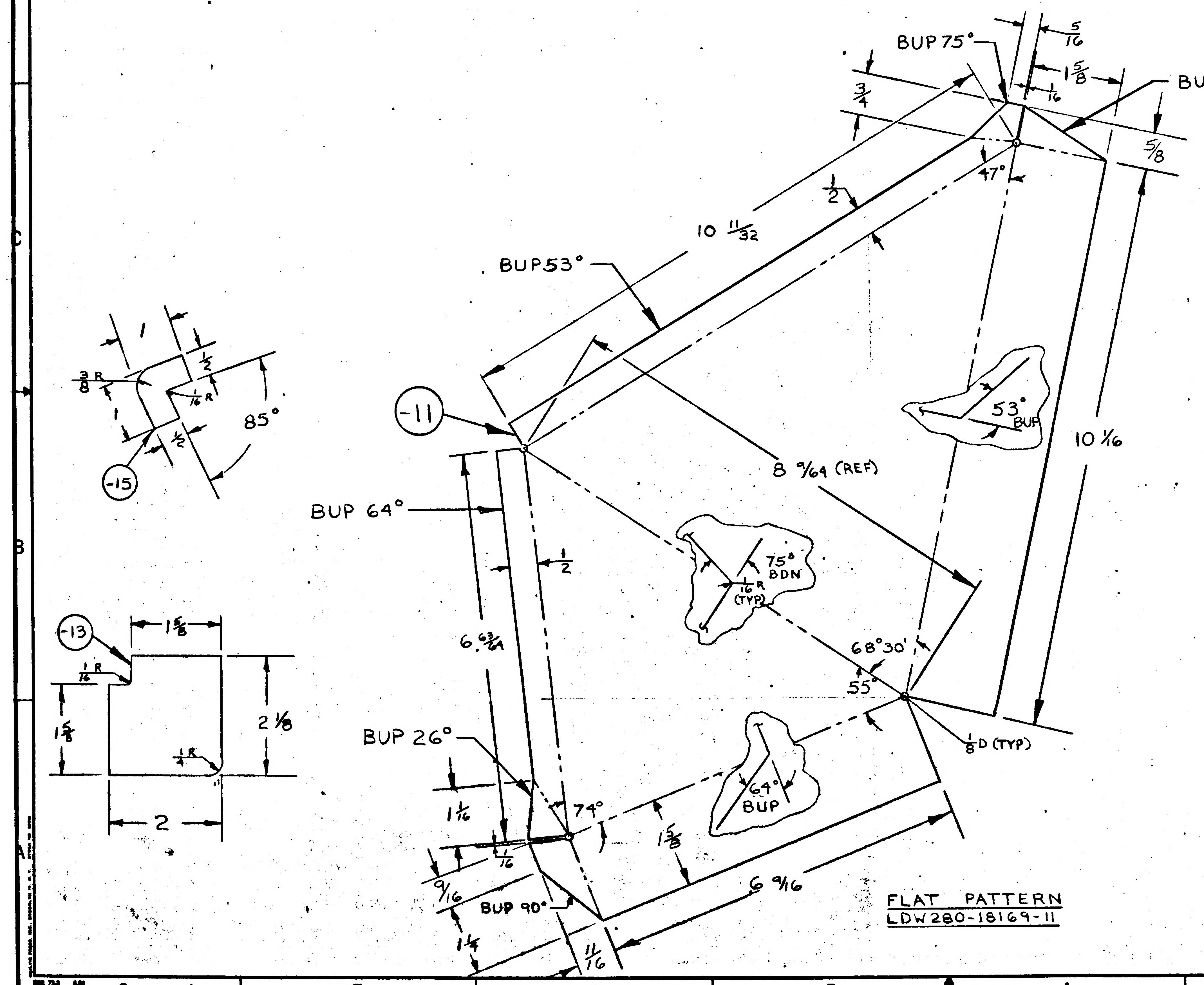
ENG 77.2 7-65

01

NAS 9-1100

NOTE:

1. NO TOOLING HOLES PERMITTED IN PART.
2. ~~INCONEL 600 FOIL, 12 IN. WIDE PER AMS 5540E.~~


BUP 75°
5/16
1 5/8
1/16
BUP 90°
3/4
5/8
47°
1/2
10 11/32
BUP53°
-11
8 9/64 (REF)
53° BUP
10 1/16
BUP 64°
1/2
75° BDN
1/16 R (TYP)
68°30'
55°
1/8 D (TYP)
6 63/64
BUP 26°
1 1/16
79°
1/16
1 5/8
64° BUP
6 9/16
9/16
BUP 90°
1 1/4
11/16
1
1/2
3/8 R
1/16 R
85°
1/2
-15
-13
1 5/8
1/16 R
1 5/8
2 1/8
1/4 R
2

FLAT PATTERN
LDW280-18169-11

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

MAY BE
LAYOUT RELEASE [redacted] REDRAWN
ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK		
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18169
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

2 THIS IS AN ORIGINAL D

NAS 9-1100

A

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER Ext A

DWG. NO. LDW280-18169		EO NO. A3
CONTROL INFO NO. LDW280A-5743		

IN F/D & L/M REMOVE -11, -13 & -15. ADD -17, -19 & -21 IDENTICAL TO -11, -13 & -15 RESP EXCEPT MATL TO BE INCONEL 600 .00125 THICK PER AMS5540E

EFF FOR- 17, -19 & -21 LM-1(31) THRU LM-15(45) 1 EACH REQD REF
N/A FOR- 17-19 & 21 LDW280-S1829 REF

ADD NOTE* FABRICATE PER LPC280-19 (USE NEXT AVAILABLE NOTE*)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LCR928 IMPROVE PAINT ADHESION	REMOVED -11, -13 & -15 ADDED -17, -19 & -21 ADDED NOTE: FABRICATE PER LPC280-19	(R) C JK 3/13/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

	5	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					JAS				
DATE		3/6/67			3/1/67	3/1/67		3-1-67	3/13/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN DES STAGE QUAD II GUILLOTINE COVER	LDW280-18169	A3

ISSUED BY G. ZEMAN/ J STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18169 | EO NO. A1
CONTROL INFO NO. DW280A3667

IN FIELD OF DRAWING

ADD NOTE *

FOR -13 & -15 USE INCONEL 600 FOIL PER AMS 5540 E, 12" WIDE

* USE NEXT AVAILABLE NOTE NO. 2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: UNLISTED MATERIAL FOR -13 & -15

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: FR 12/2/6

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-1 (31) THRU LM-15 (46)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				JHS	NM		RME WR	
DATE				12/1/66	12-2-66		12-2-66	12-2-66
6	V.D.I	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN-DESCENT STAGE-QUAD IV GUILLOTINE ACCESS COVER	LDW280-18169	A1

ISSUED BY A.F. MARZELLA 11-23-66 SECTION VEHICLE DESIGN & INT. GROUP NO. 335 PL 35

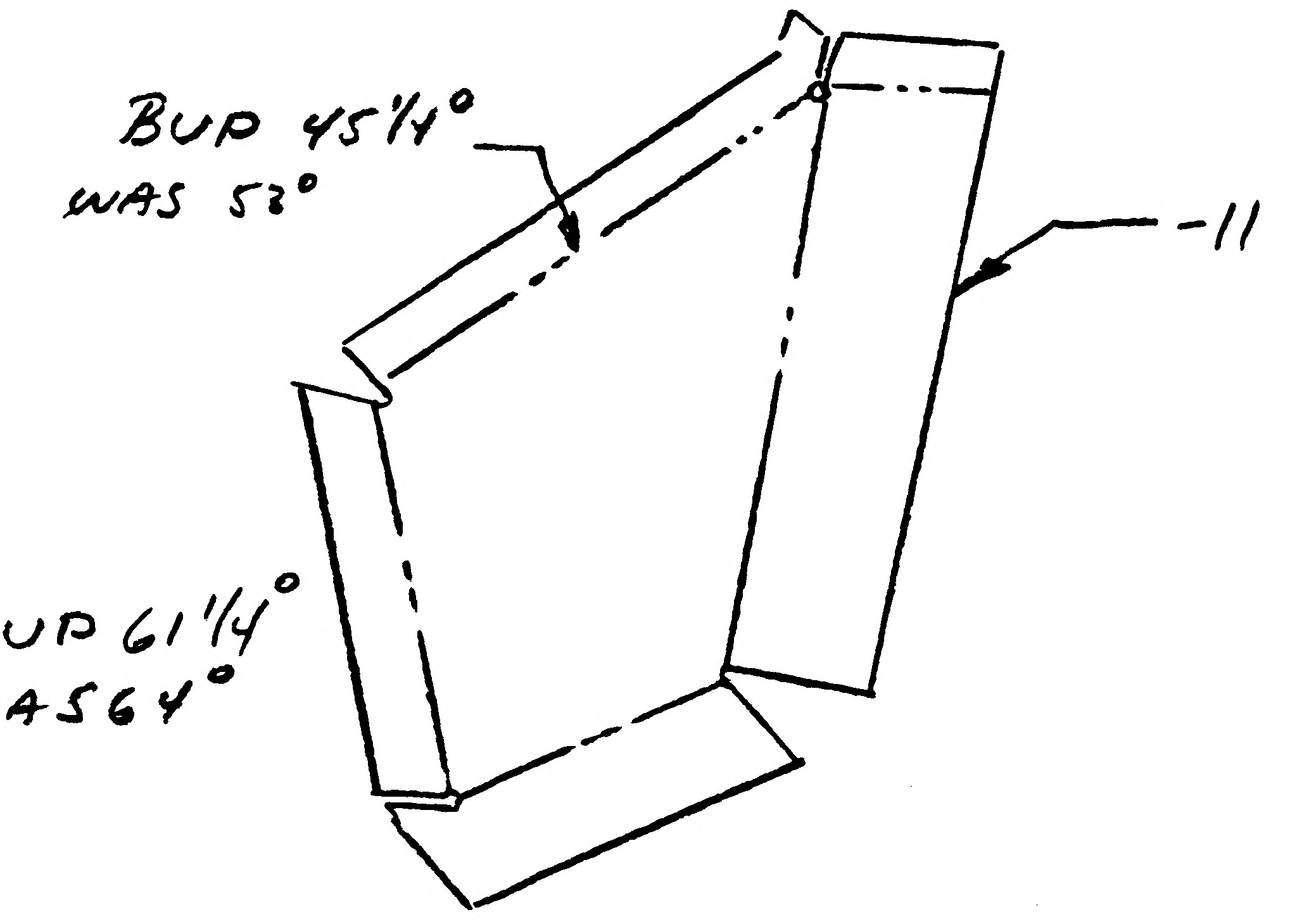
01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18169
EO NO. AV
CONTROL INFO NO. LDW2F0A- 4026



2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: DWG ERROR

DESCRIPTION OF EO:
ON -11 BUP 45¼° WAS 53°
BUP 61¼° WAS 64°

HTW 12-7-66

GAEC EO RELEASE: FR 2/7/?

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)-15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: ✓ REWORK / SCRAP

APPROVED BY					GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	12/6/66				12/6	12/6/66		12-6-66	12-7-66
1	VDI	SUPPORT	RELIAB. GROUP						

PRIORITY: C

DRAWING TITLE: SKIN D/S QUAD IV GUILL. ACC

DRAWING NO.: LDW280-18169

EO NO.: AV

ISSUED BY J STRAKOSCH 1153 SECTION V.D1 GROUP NO. 335 PL 35

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEER NG ORDER

DWG. NO. LDW280-18169
EO NO. A4
CONTROL INFO NO. LDW280B0028

RESTRICT -17, -19 & -21 TO LM-1 & LM-2
(WAS) LM-1 THRU LM-15

FITH

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1244

5

REASON FOR EO: NEW SHIELD INSTL CREATED FOR LM-3 THRU LM-15

DESCRIPTION OF EO: RESTRICTED -17, -19 & -21 TO LM-1 & LM-2 REMOVED LM-3 THRU LM-15 EFF

GAEC EO RELEASE: C 11/30/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33) THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	JAP			PT			JAP	Botti
DATE	11/29/67			11-29-67	11/29/67		11/29/67	11-29-67
P	VDI	THERMO ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SKIN - QUAD IV D/S GUILLOTINE ACCESS COVER
DRAWING NO. LDW280-18169
EO NO. A4

G.2. 120167
ISSUED BY ROESSLER / THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00,1.10,2.00 & 3.00						E.O. A1	E.O. A1, INITIAL DRAWING RELEASE PART MADE PER E.O.	LTA-8 & LM-1 THRU LM-15	NOT	REQD	NISBET 12-12-66	12-21	12-21
	2	1.00 & 1.10						E.O. A2	IN MOD BLOCK (REF. E.O. A1) -11 N/A LDW280-28835(53) REQD/MOD WAS (156) REQD/MOD	LTA-8 & LM-1 THRU LM-15		✓	NISBET 12-28-66		
	3	1.00 & 1.10						E.O. A3	REF E.O. A1 IN MOD BLOCK: (-11) REMOVED LTA-8(18) EFFECTIVITY. WCG HR	LTA-8		✓			
B	1	1.00, 1.10 2.00, 3.00		P		✓		LCD 2008	ADDED-13, RESTRICT-11 FOR USE ON LM-1 THRU LM-5 WAS EFF. LM-1 THRU LM-15	LM-6 THRU LM-15		✓	EISELE 4-11-68	4/11/68	4-22-68
C	1	1.00, 1.10, 2.00, 3.00		LFM 200		✓		LCD 2965 CCA 1235	ADDED-15 WCG Szalwinski 11-15-68	LM-5 LM-6	NOT	REQD	EISELE 11-12-68	11/19/68	11-20-68

CHG APPROVED

LTR	GROUP LDR	VEH.DES.INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
A		12/13/66	WJH 12/21								
B	4-12-68	4/16/68	WJH 4/17/68								
C	11/15/68	11/15/68	—	WJH 11/18/68							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18190	C

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

LDW280-18190 C

LM	LDW280-54700	LM-6(36)	4
LFM 200	LDW280-54700	LM-5(35)	4
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18190-15		GAEC SCH NO.	

LM	LDW280-28835	LM-15(45)	53
↕	↕	LM-14(44)	53
		LM-13(43)	53
		LM-12(42)	53
		LM-11(41)	53
		LM-10(40)	53
		LM-9(39)	53
		LM-8(38)	53
		LM-7(37)	53
LM	LDW280-28835	LM-6(36)	53
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18190-13		GAEC SCH NO.	

LM	LDW280-28835	LM-5(35)	53
↕	↕	LM-4(34)	53
		LM-3(33)	53
		LM-2(32)	53
LM	LDW280-28835	LM-1(31)	53
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18190-11		GAEC SCH NO. 50-Z	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	C	C	C	C					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO C

PRIM NO. 207 SK(001) ME-160 11/20/? EHF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY R. NISBET 12-9-66
RELIABILITY
LAYOUT BY ZUVER
CHECKED BY H. RODALEWICZ WCG 12-14-66
~~VEH DES INT~~ [illegible]
~~GR LEADER~~
STRUCTURES [illegible] 12/21
STRUCTURES FED 12/21
WEIGHTS
PROJ ENGR [illegible] 12-21
REL GROUP [illegible]

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE PROP TANK
COVER METEOROID PROTECTION

SIZE B
CODE IDENT NO. 26512
LDW280-18190 C
SCALE NONE
SHEET 1.00 OF 4

ENG 77 1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18190-15	E		CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.040X2X2	NONE	88	
	LDW280-18190-13	E		CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.020X2X3	NONE	88	
	LDW280-18190-11	E		CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.020X2X3	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18190	C

SCALE NONE

SHEET 2.00

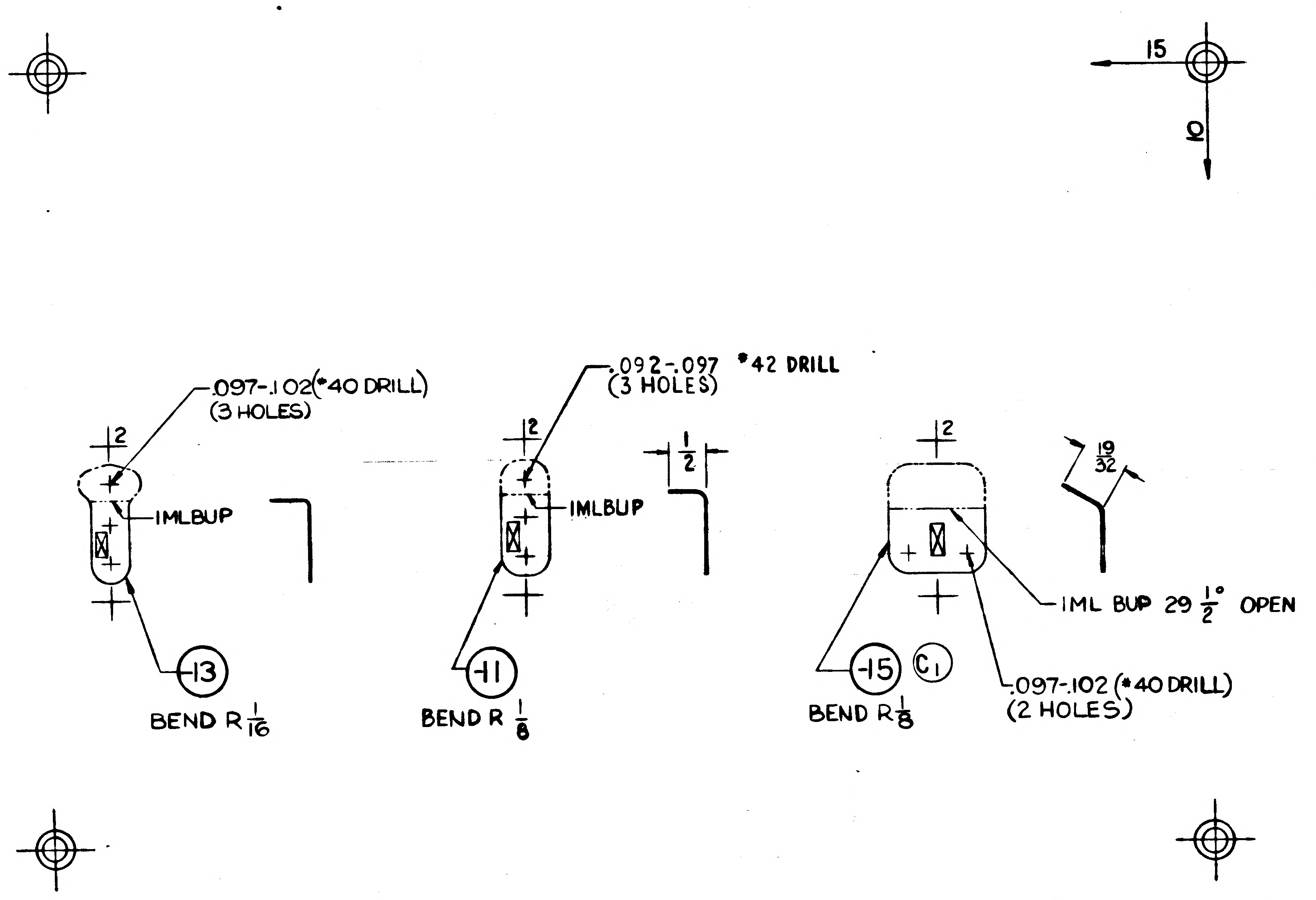
ENG 77.2 5-64

01

NAS 9-1100

T.H. HR

NOTES:
1. NO TOOLING HOLES PERMITTED IN PART


15
10
.097-.102(*40 DRILL)
(3 HOLES)
2
IMLBUP
-13
BEND R $\frac{1}{16}$
.092-.097 *42 DRILL
(3 HOLES)
2
IMLBUP
$\frac{1}{2}$
-11
BEND R $\frac{1}{8}$
2
$\frac{19}{32}$
IML BUP 29 $\frac{1}{2}$° OPEN
-15
C1
BEND R $\frac{1}{8}$
.097-.102 (*40 DRILL)
(2 HOLES)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE C	CODE IDENT NO. 26512	LDW280-18190	C
MODEL OR END ITEM	SCALE FULL			SHEET 3.00

LDW280-18190 C

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1438
CONTROL INFO NO. LDW280B7423

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18088	B3	SEE DWG
-18093	B3	
-18095	B2	
-18110	B1	
-18118	A4	
-18119	A4	
-18137	B3	
-18140	B1	
LDW280-18190	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 53 PG 8 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 5/5/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				RBT				
DATE	4/1/69			4-2-69			4/9/69	5-5-69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO. 1438

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

[illegible] LEO 280		EO NO. 1523
CONTROL INFO NO. LDW 280B 8107		

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW 280-18190 ✓	SEE DWG	D2
✓ 195	↑	C4
✓ 196		B3
197		B4
198		B3
199		B3
200		B3
201		B5
206		B5
LDW 280-18223	SEE DWG	B4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 28 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (~~23~~) REQ'MTS	0 WB 8-6-69 JK 8/9/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	pJt				M			Bauman
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8-2-69		8/2/69	8/8/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C.	SEE DRAWINGS	LEO 280	1523

8-22-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1732
CONTROL INFO NO. LDW280B9166

FOR THE DRAWINGS LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS. *

DRAWING NUMBER *	NEXT ASSEMBLY	DWG. TITLE	CHG. LTR
LDW280-51642-5-1	LDW280-58553	SEE DWG	B5
-18140-11,-21,-23,-25,-27&-29	-51642		B3
-18201-15&-17-19	-51642		B6
-18206-15,-17,19&-21	-51642		B6
-51818-1	-58553		B2
-18119-11,-13,-15,-17&-19	-51818		A6
-28835-9	-58553		C5
-18190-13	-28835		D3
-54643-1	-28835		A2
LDW280-54832-1	LDW280-28835	SEE DWG	A2

* APPLICABLE DASH NO.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG59 CCA 2205 (5)

REASON FOR EO: LMMP REDESIGN. 3 TANK EXPANSION

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF. FROM - *

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	—			10-20-69	10/21/69		10/20/69	10/22/69

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 1732

CDR 10-24
ISSUED BY D. SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

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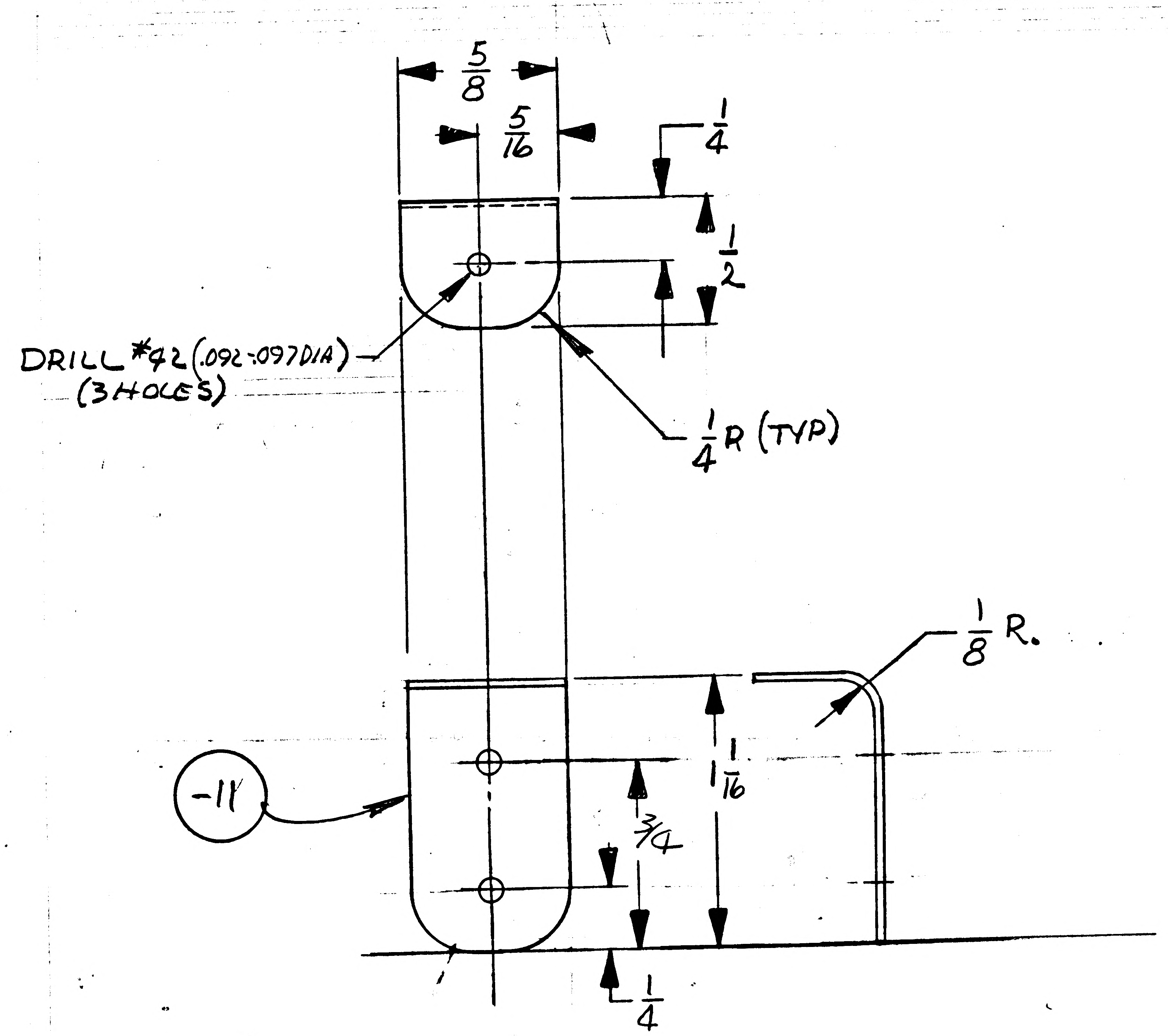
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18190 | EO NO. A1
CONTROL INFO NO. LDW280A3197



LDW280-18190-11	E	CLIP	AL ALLOY SHT	QQA250/4	2024 T3	.020X1X2	NONE	88	
PART NO.	1ST	NOMEN	MATL	GOV. SPEC	COML SPEC	SIZE	PRO	FIN	

LM ↕	LDW280-28835 ↕	LM15(45) THRU LM1 (31)	156 ↕
LM	LDW280-28835	LTA8(18)	156
MODEL	N/A	MOD	REQ/MOD
LDW280-18190-11			

*DRAWING NOT MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

2

REASON FOR EO: TO PROVIDE CLIPS FOR METEOROID SHIELD

DESCRIPTION OF EO: E.O. A1 INITIAL DRAWING RELEASE PART MADE PER E.O.

Ⓡ GAEC EO RELEASE: FR 11/22/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	
		LM1(31) THRU LM15(45)	

DRAWING CHANGE REQD: * REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NONE REWORK | NONE SCRAP

APPROVED BY					NM			Botti
DATE	11/11/66				11-11-66		11-17-66	11-22-66
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: CLIP - DES. STG COVER - PROP TANK METEOROID PROTECTION

DRAWING NO.: LDW280-18190

EO NO.: A1

ISSUED BY ZINER / STRAKOSCH X1153 11/9/66 SECTION VEH DES INT GROUP NO. ____ PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18190
EO NO. A2
CONTROL INFO NO. LM-5-9799

THIS IS A REVISION OF EOA1

IN MOD BLK -11 N/A LDW280-28835 (156) REQD/MOD
S/B (53) REQD/MOD

5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: TO AGREE WITH N/A REQUIREMENTS

DESCRIPTION OF EO: IN MOD BLK (REF EOA1) -11 N/A LDW280-28835 (53) REQD/MOD WAS (156) REQD/MOD

GAEC EO RELEASE: ✓ C KE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 THRU LM-15 (31) THRU (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY					—	CH	RMC	JRP
DATE	12/4/66				—	12-1-66	12-2-66	12/1/66
1	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: CLIP- D/S PROPELLANT TANK COVER METEOROID PROTECTION
DRAWING NO. LDW280-18190
EO NO. A2

ISSUED BY LIAISON J. McGill / AR X6452 SECTION VDI GROUP NO.____ PL 35

01 NAS 9-1100

ENG 32.1 REV -65 RELEASED BY LIAISON

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18190		EO NO. A3
CONTROL INFO NO. LM 5-11465		

THIS IS A REV OF EO A1

IN MOD BLK: (-11) - REMOVE LTA 8 (18) EFF)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		

REASON FOR EO: CLIPS NOT REQD FOR TEST VEHICLE

DESCRIPTION OF EO: REF EO A1 IN MOD BLK (-11) REMOVED LTA 8 (18) EFF

GAEC EO RELEASE C

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			—	JRB	CH	RMC	
✓			-11	DATE	12/19/66			—	12/19	12-19	12-22-66	12/20/66
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S - PROP TANK - COVER - METR. SH'D	LDW280-18190	A3

ISSUED BY DON RAGAS x6454 SECTION VD1 GROUP NO. 335 PL 5

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	I	1.00 1.10 2.00 3.00						EO A1	INITIAL DRAWING RELEASE. PARTS MADE PER EO [illegible] ②	NOTED	NOT	REQD	FITZGERALD 1-19-67 7A	RMB	

FOR CONTINUATION OF REVISIONS SEE SHEET ____

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK				
SIZE B	CODE IDENT NO. 26512	LDW280-18192		A
SCALE NONE			SHEET 1.10	

ENG 77.3 5-66

01

NAS 9-1100

LDW280-18192 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25539	LM-1(31)	1
↕	LDW280-25536	↕	1
↕	LDW280-25534	↕	1
↕	LDW280-28531	↕	1
LM	LDW280-28528	LM-1(31)	1

PART NO. LDW280-18192-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25536	LM-1(31)	1
LM	LDW280-25534	LM-1(31)	1
LM	LDW280-28531	LM-1(31)	1
LM	LDW280-25530	LM-1(31)	1

PART NO. LDW280-18192-15 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51537	LM-1(31)	1
LM	LDW280-25533	LM-1(31)	1
LM	LDW280-28528	LM-1(31)	1

PART NO. LDW280-18192-14 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25530	LM-1(31)	1

PART NO. LDW280-18192-11 — GAEC SCH NO. 51.4

WORK PACKAGE FUNCTION NUMBER 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED —

LAST DASH NO. USED -15

GRUMMAN REL INFO: PRIM NO. 233 — LE(001) MP-14 2-1-7 A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	FITZGERALD 12-20-66	WEIGHTS	
LAYOUT BY	R. FLANDERS	RELIABILITY	
CHECKED BY	ARATOLI 1-20-66		
GRP LEADER			
VEH DES INT	1/23/67		
STRUCTURES	WH 1/27/67	PROJ ENGR	R.M. Carbee 1-27-67
STRUCTURES	J EC 1/27/67	REL GROUP	

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE-QUAD I, II, III & IV
DIAGONAL TEE-SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18192 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18192-15	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.071×3×4	T6	88	
		LDW280-18192-14	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.071×3×4	T6	88	
		LDW280-18192-13	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.071×3×4	T6	88	
		LDW280-18192-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.071×3×4	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18192	A

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

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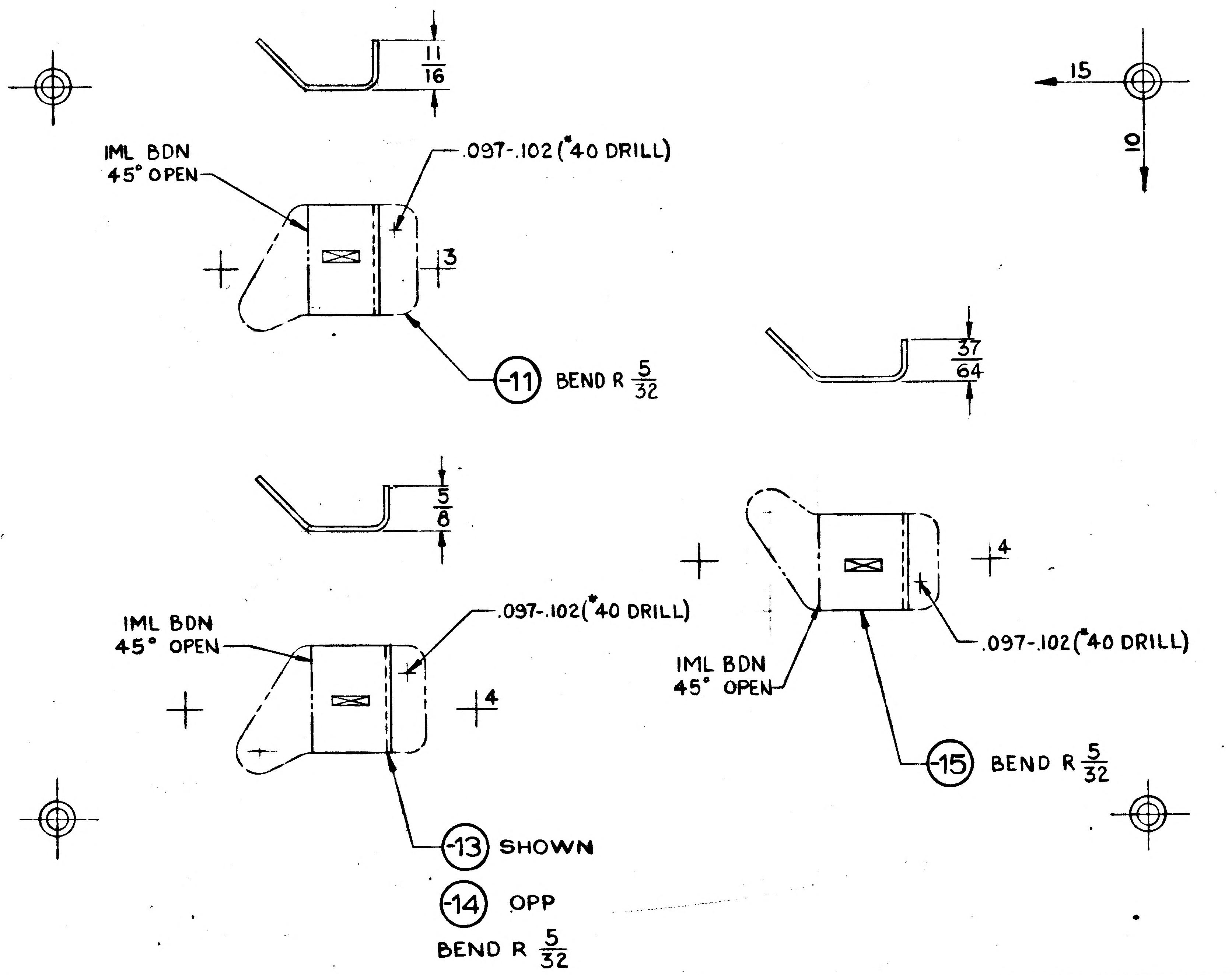
NAS 9-1100



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18192	A
	SCALE FULL			SHEET 3.00

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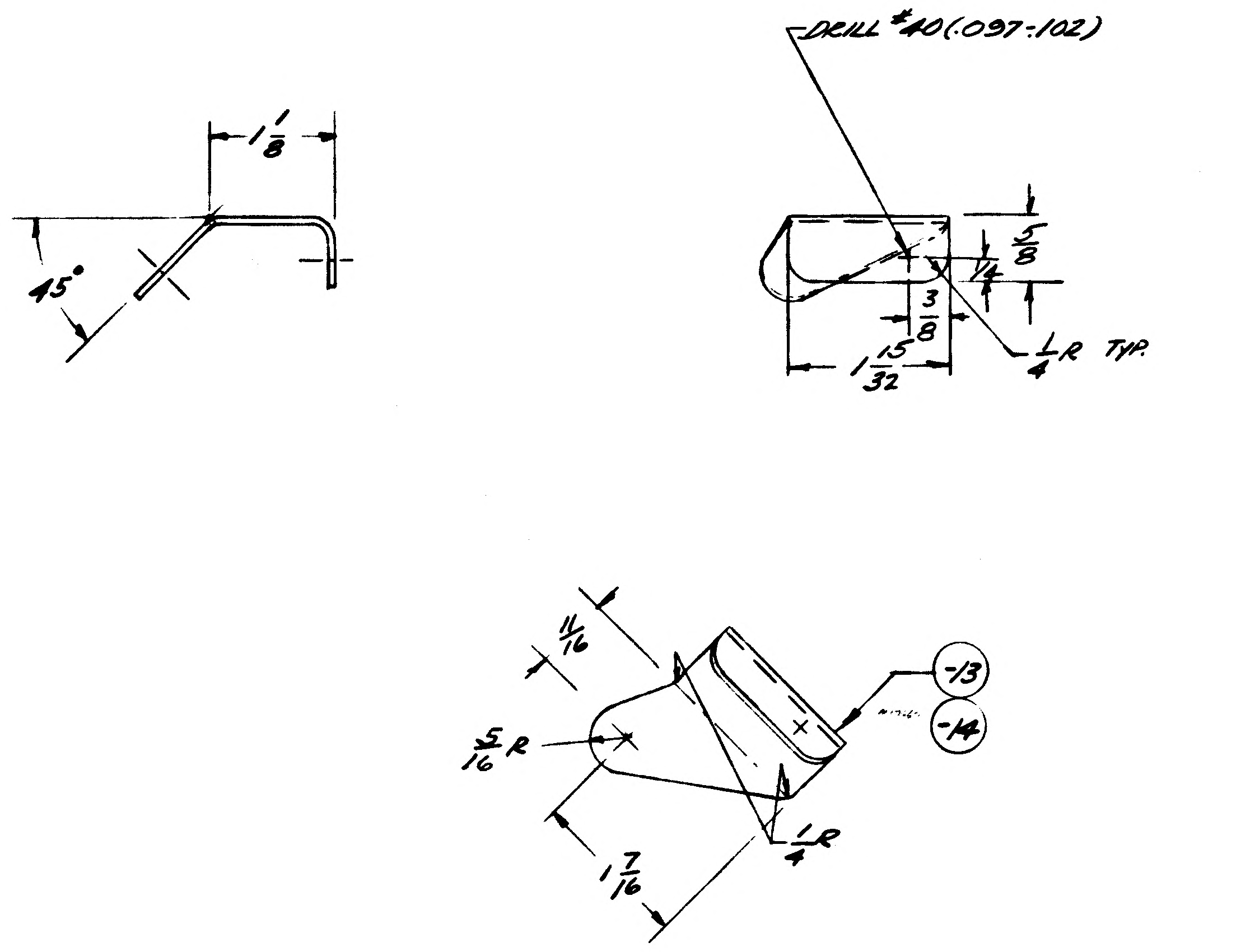
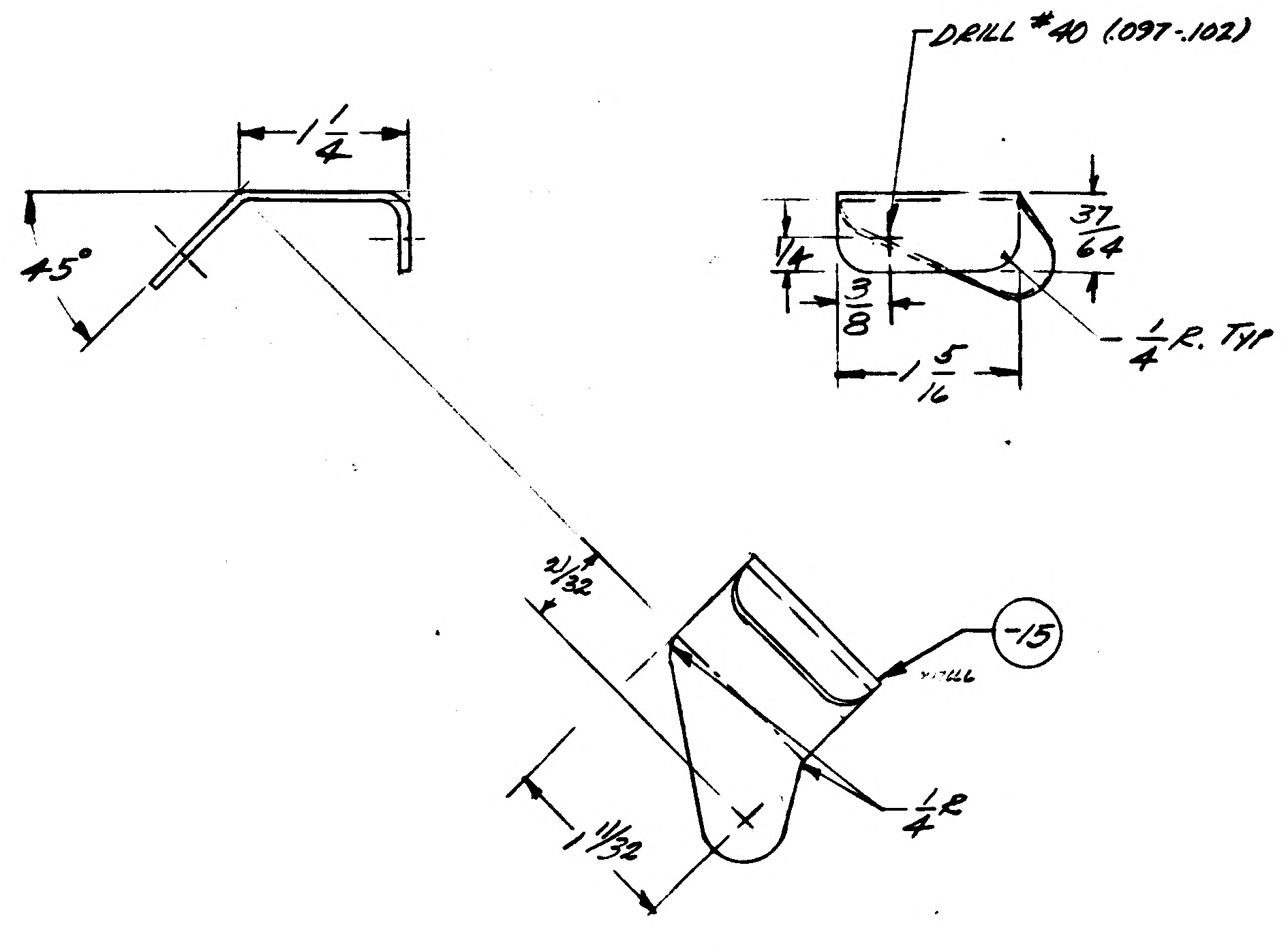
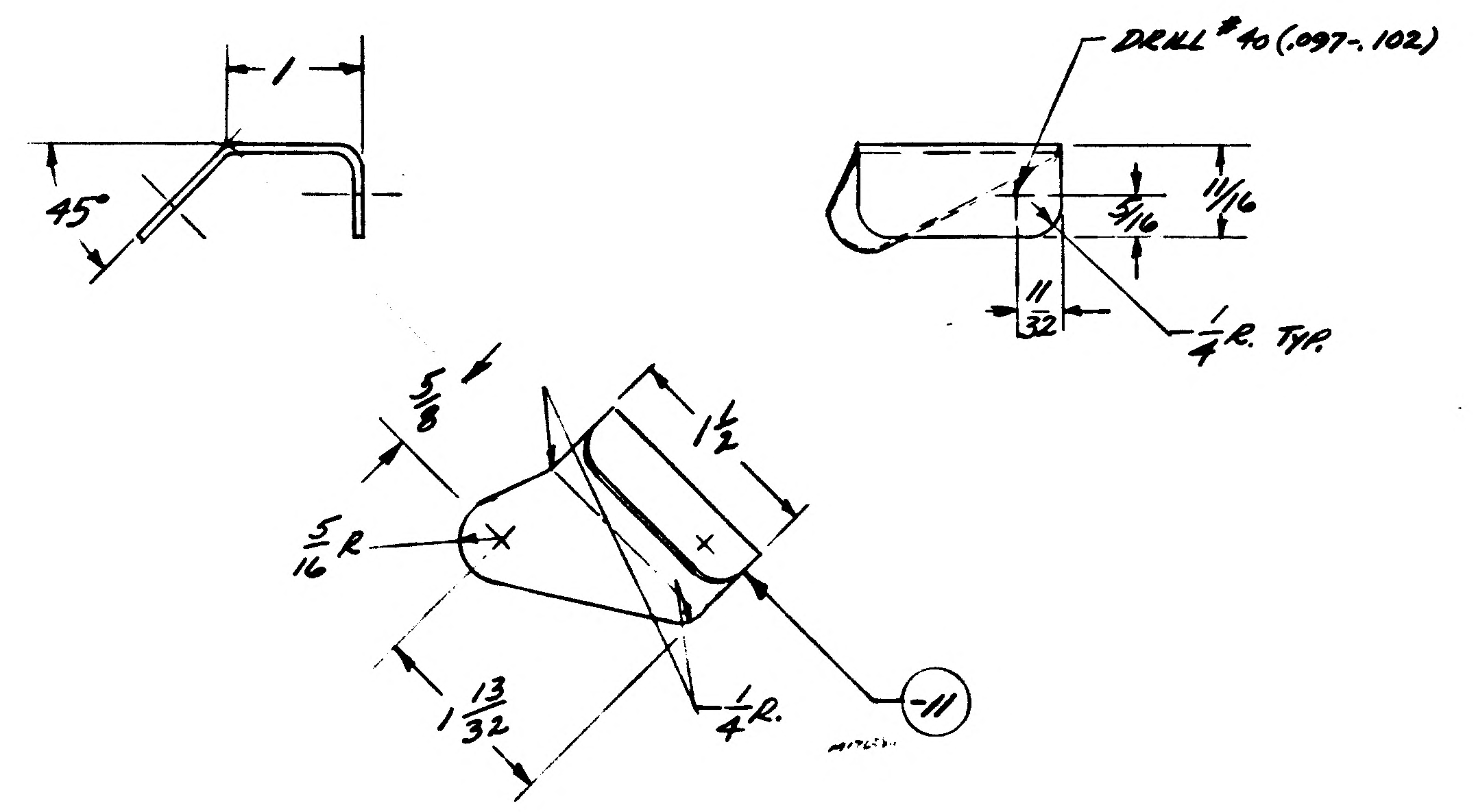
NAS 9-1100







PART NO.	LIST	NOMENCLATURE OR DESCRIPTION	MATL	GOVT. SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.
LDW280-18192-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075-0	.071×3×4	T6	88
LDW280-18192-13	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075-0	.071×3×4	T6	88
LDW280-18192-14	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075-0	.071×3×4	T6	88
LDW280-18192-15	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075-0	.071×3×4	T6	88

CONT NO. NAS9-1100 - LINE ITEM # 1 - DOCUMENTATION TYPE II BEND RADIUS 5/32
DRAWING TOL. TO BE FRACTIONAL ± 1/32, DECIMAL ±.010, ANGLE ± 1/2°

MODEL OR END ITEM	NEXT ASSY.	MODULE OR SER. NO.	REQD PER MODULE
LM	LDW280-51537	LM-1 (31)	1
LM	LDW280-25533	LM-1 (31)	1
LM	LDW280-28528	LM-1 (31)	1
LDW280-18192-14			
LM	LDW280-25539	LM-1 (31)	1
	LDW280-25536		1
	LDW280-25534		1
	LDW280-28531		1
LM	LDW280-28528	LM-1 (31)	1
PART NO. LDW280-18192-13			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE
LM	LDW280-25536	LM-1 (31)	1
LM	LDW280-25534	LM-1 (31)	1
LM	LDW280-28531	LM-1 (31)	1
LM	LDW280 25530	LM-1 (31)	1
LDW280-18192-15			
LM	LDW280-25530	LM-1 (31)	1
PART NO. LDW280-18192-11			

*DRAWING NOT MADE

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

- PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.
- FILLET AND INSIDE CORNER RADII TOLERANCES
  - .016R TO .062R ± .010
  - .063R TO .250R ± .015
  - OVER .250R ± .030
- DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE
- EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
- DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
- MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
- DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING
- HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
- ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES
- 125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10
- 200 √ FOR ALL DRILLED HOLES
- REMOVE ALL BURRS. BREAK ALL EDGES .015-.031
- INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
- SYMBOL √ DENOTES SURFACE TO BE MACHINED
- UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32
- LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED
- TOLERANCE ON LOFTED DELINEATIONS IS

(2)

DETAIL SPEC REQD ☐ CLASS II ENGRG CHG ☐ CLASS I ENGRG CHG ☐
CONTROL INFO NO. LDW280A-3221

REASON FOR EO: REDESIGN OF PARTS DUE TO STRUCTURAL TEST FAILURE

DESCRIPTION OF EO: E.O. A1 INITIAL DWG RELEASE
PARTS MADE PER E.O.

GRUMMAN EO RELEASE: LE 11/9/66 51-4

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY -11, -13, -14 & -15		
LM-1		LM-1 (31)	

DRAWING REVISION REQD: REVISE DWG * RECORD EO
DISPOSITION OF PARTS: NOT REQD. REWORK SCRAP
BY: JHS DATE: 11/1/66 1 VDI
SUPPORT —
RELIAB GROUP —
GROUP LEADER —
STRESS GROUP 11/5/66
LIAISON ENGRG
PROJ ENGR RMC 11-15-66
GOVT 11/17/66

PRIORITY: C

DRAWING TITLE: BRACKET
D.S.-QUAD I, II, III & IV-DIAGONAL
TEE-SUPPORT

ENGINEERING ORDER
DRAWING NO. LDW280-18192
EO NO. A1

ISSUED BY R FLANDERS x1153 11-10-66 SECTION V.D.I. GROUP NO. 335 PL 35
CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32.3 REV 3-65

01 NAS 9-1100

LDW280-18193 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28659	LTA-8(18)	1
LM	LDW 280-28658	LTA-8(18)	1
LM	LDW 280-28657	LTA-8(18)	1
LM	LDW280-28656	LTA-8(18)	1

PART NO. LDW280-18193-11

GAEC SCH NO. 52

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO A

PRIM NO. 207

FR(001)

MP 14A 12/8/6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES

±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

DRAWN BY S. JOHNSON 11/18/66

LAYOUT BY COMISKEY

CHECKED BY R. SMITH 11-21-66

GR LEADER

VEH DES INT

STRUCTURES FB 12/8

STRUCTURES

WEIGHTS

RELIABILITY

PROJ ENGR 12-8

REL GROUP

© GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE-THERMAL INSTL
COLDPLATE

SIZE B

CODE IDENT NO. 26512

LDW280-18193 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00, 3.00						EO-A1	INITIAL DWG RELEASE - PARTS MADE PER EO	LTA-8 (18)	NOT	REQD	JOHNSON 11/18/66		

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18193	A
SCALE NONE		SHEET 1.10	

ENG 77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18193-11	E	ANGLE	AL ALY SH	QQ-A-250/4	2024-T3	.040×2×9	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

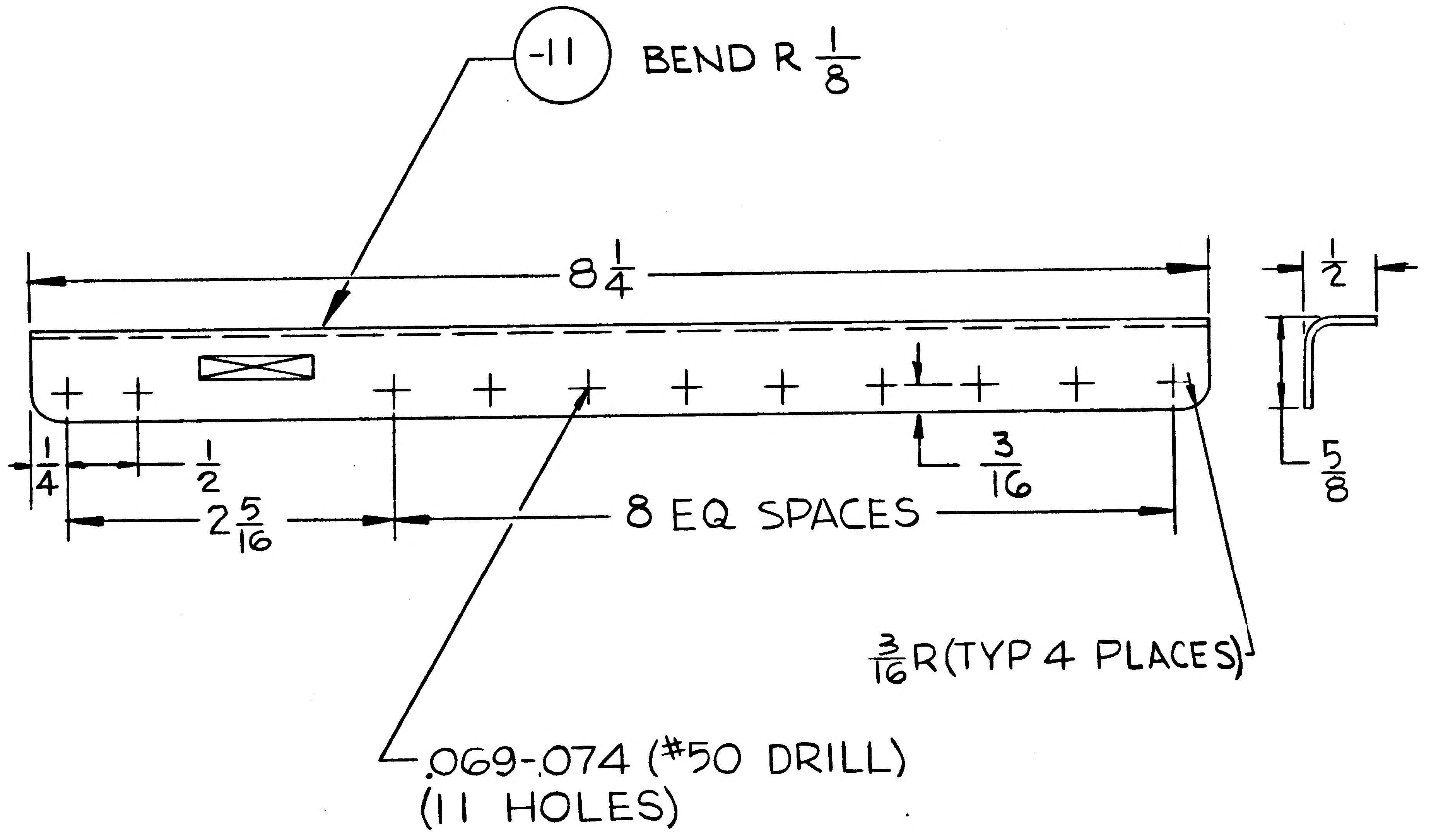
SIZE	CODE IDENT NO.		
B	26512	LDW280-18193	A

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓	FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.		EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.		ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.		REMOVE ALL BURRS. BREAK ALL EDGES .015-.031
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING		SYMBOL √ DENOTES SURFACE TO BE MACHINED
		TOLERANCE ON FLANGES IS ± 1/32
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.		LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10		
200√ FOR ALL DRILLED HOLES		
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS		

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18193	A
SCALE FULL		SHEET 3.00	

ENG 73.11 12-64

01 NAS 9-1100

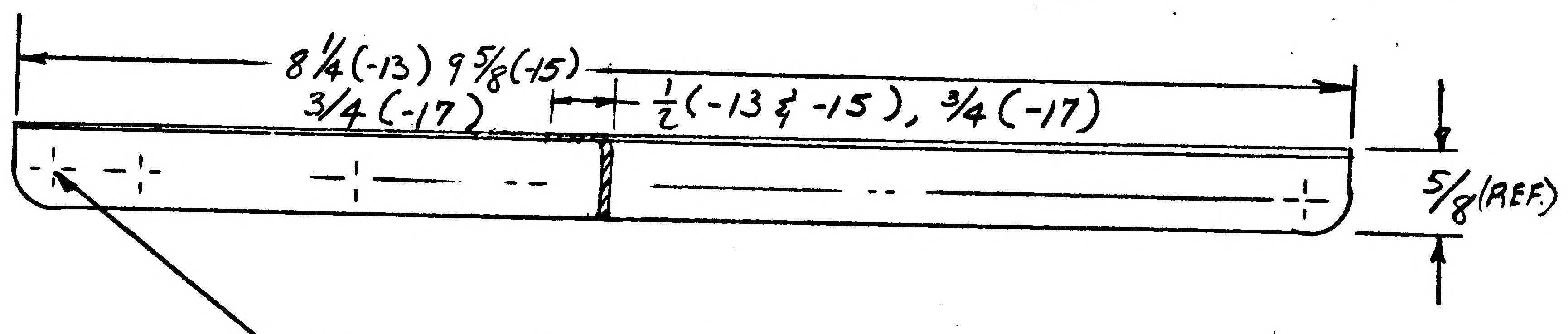
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18193
EO NO. B1
CONTROL INFO NO. LM 5-11155

IN F/D, B/M & N/A BLOCK REMOVE -11.

ADD(-13,15&17) IDENTICAL TO -11 EXCEPT AS SHOWN.
I & T=E NEXT ASSY: LDW280-28656 1 REQD./MOD } -13
LDW280-28659 1 REQD./MOD. } -13
LDW280-28657 1EA REQD./MOD. } -15,-17
LDW280-28658 1EA REQD./MOD. } -15,-17



REMOVE CALLOUT
DRILL #50 (.069-.074) (11 HOLES)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO FACILITATE INSTL WITH SUPT STRUCT FOR COLDPLATE

DESCRIPTION OF EO: ADDED -13, 15&17, REMOVED -11

GAEC EO RELEASE: ® Cr

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓ REVISE DWG	RECORD EO	✓ REWORK	-11 SCRAP									
				APPROVED BY	WT			—	JAB	CH	RMC Ⓔ	JR?
				DATE	11/21/66			—	11-21-66	11-21-66	11-23-66	11/21/66
				5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[redacted]

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE D/S - THERMAL INSTL - COLDPLATE	LDW280-18193	B1

ISSUED BY RAGAS / FRAUT SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

LDW280-18194 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28813	LTA-8(13)	8

PART NO. LDW280-18194-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28813	LTA-8(3)	2
PART NO LDW280-18194 -17			
LM	LDW280-28813	LTA-8(13)	1EA

PART NO. LDW280-18194-13,-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28813	LTA-8	4

PART NO. LDW280-18194-11

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO A

PRIM NO.	FR(001)		
233	MP14A	12/11/6	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY KLUGE 11-18-66
LAYOUT BY QUEVEDO
CHECKED BY H. RODALEWICZ 11-22-66
~~GRP LEADER~~
VDI
THERMO
STRUCTURE 12/2
STRUCTURE
WEIGHTS
RELIAB.
PROJ ENGR
REL GROUP J Pagliaro 12/9/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN
DESCENT STAGE-REM. BASE
HEAT SHIELD-HEATER

SIZE B
CODE IDENT NO. 26512
LDW280-18194 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	I	1.00,1.10, 2.00,3.00					✓	EOA1	INITIAL DWG RELEASE PARTS MADE PER EO HR	LTA-8	NOT	REQ'D	KLUGE 11-21-66	12/8	12-8-66

CHG APPROVED	LTR	~~GROUP LDR~~	VDI	THERMO	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY				
	A		12/8		FEP 12/7							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18194	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18194-19	E	SKIN	HR&CRES SH	MIL-S-6721	COMP321ANL	.013 × 4 × 11	NONE	NONE	
		-17						.013 × 11 × 68			
		-15						.013 × 11 × 68			
		-13						.013 × 11 × 68			
		LDW280-18194-11	E	SKIN	HR&CRES SH	MIL-S-6721	COMP321ANL	.013 × 13 × 29	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18194

A

SCALE NONE

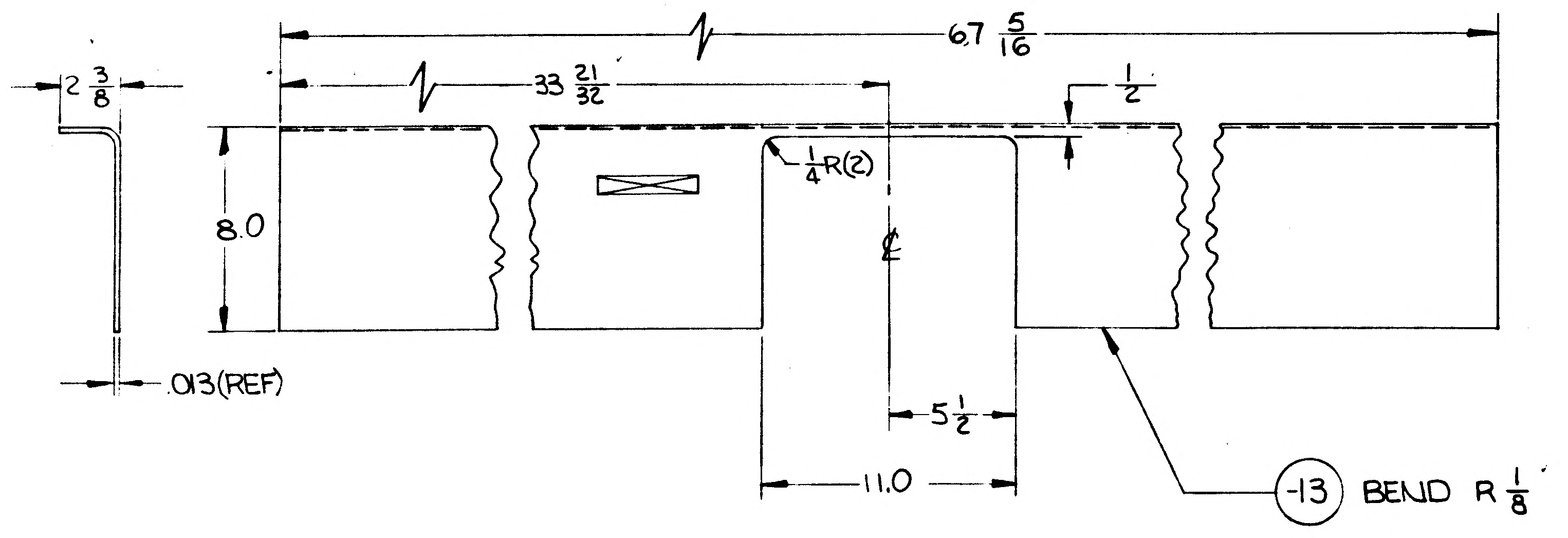
SHEET 2.00

ENG 77.2 7-65

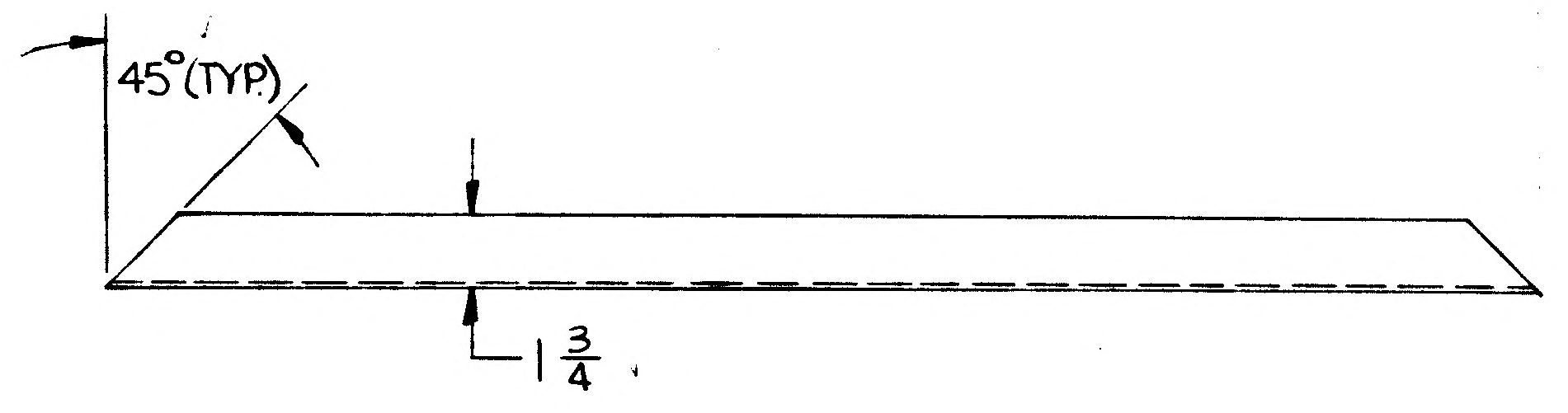
01

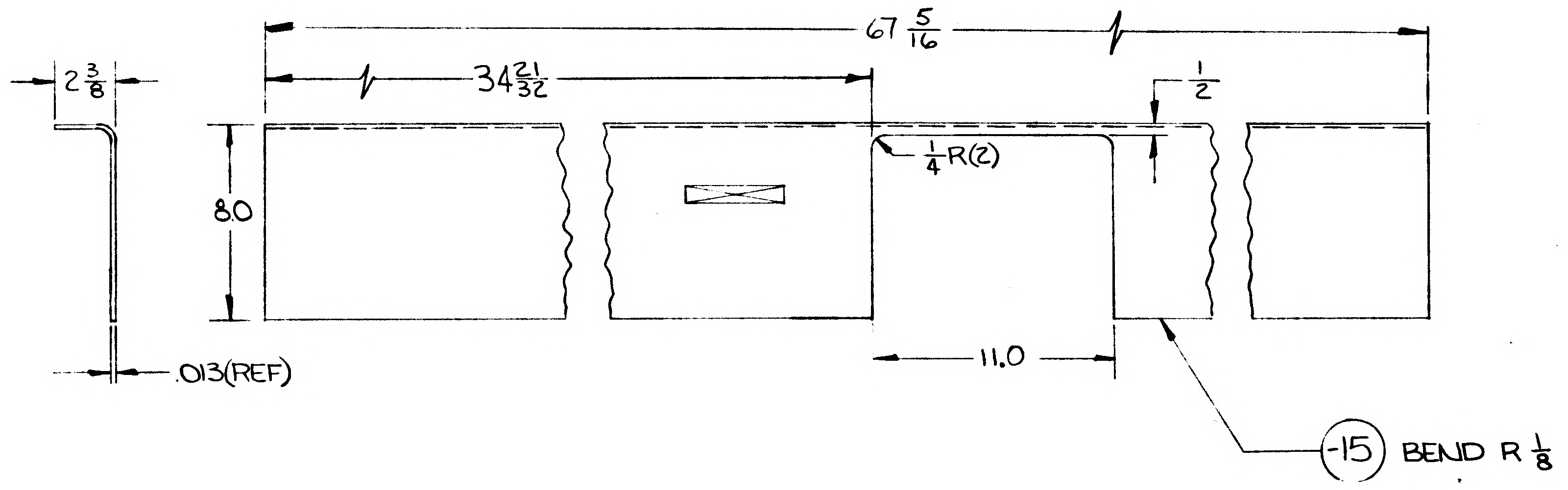
NAS 9-1100

NOTE-
1. THE TOTAL HEMISPHERICAL EMITTANCE AT 100°F SHALL BE .16 ± .05 ON FAR SIDE AS MEASURED WITH A GIER-DUNKLE PORTABLE EMISSOMETER

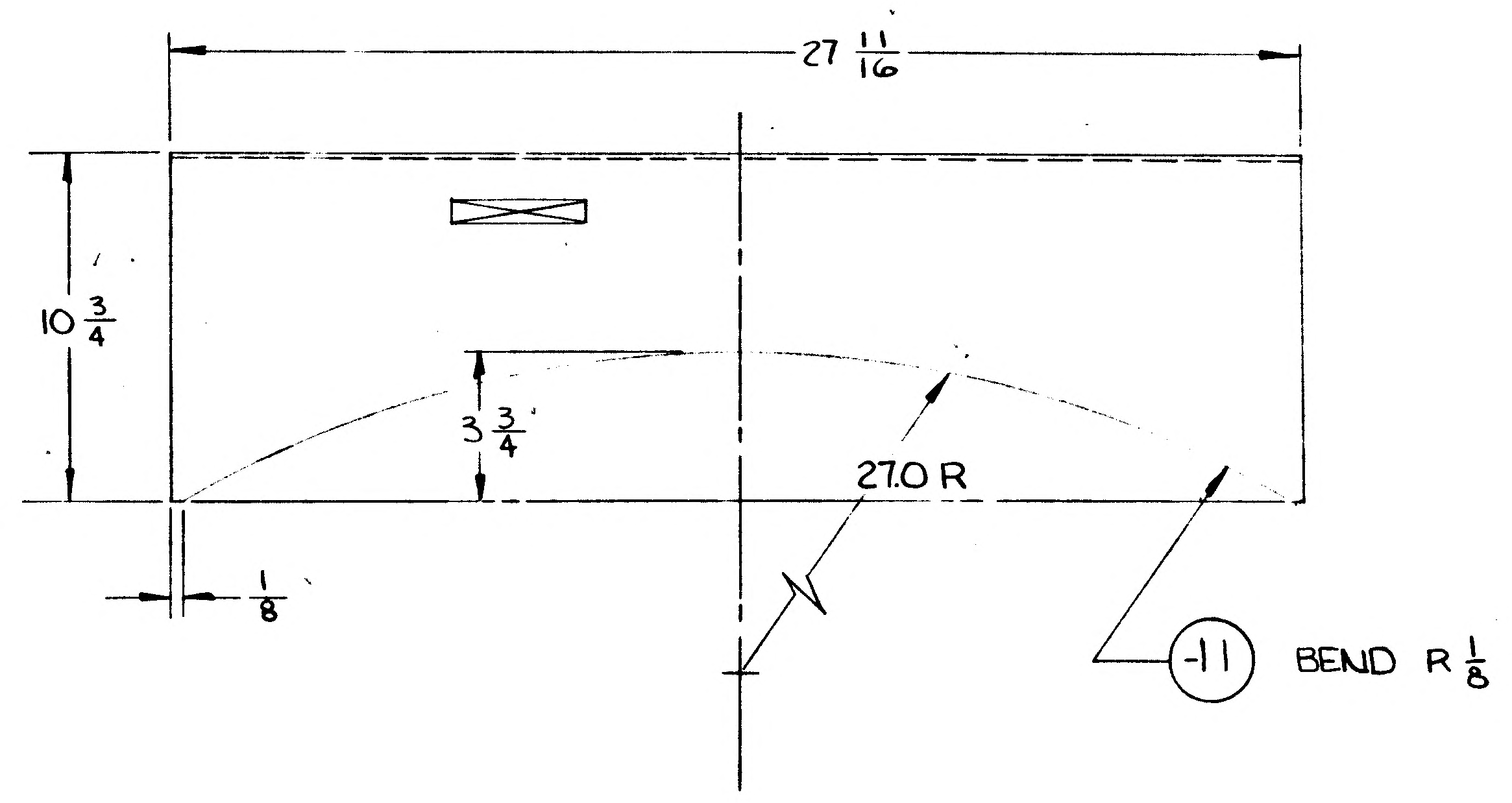


2 3/8
67 5/16
33 21/32
1/2
1/4 R(2)
8.0
℄
5 1/2
11.0
.013(REF)
-13 BEND R 1/8

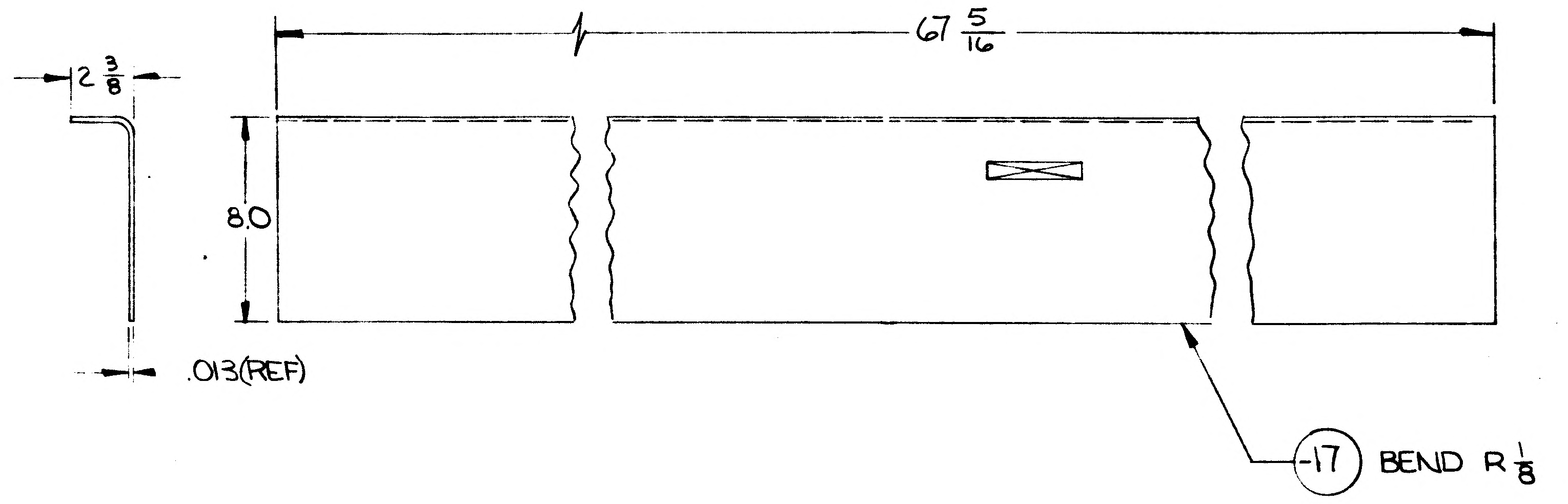




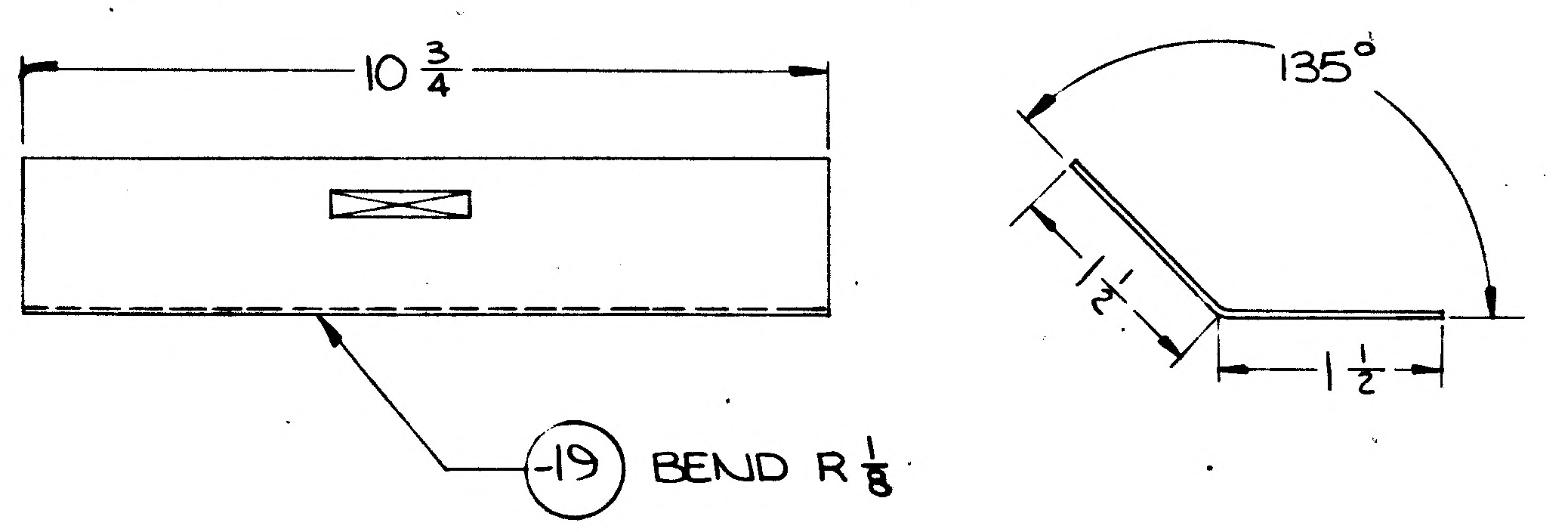
2 3/8
67 5/16
34 21/32
1/2
1/4 R(2)
8.0
11.0
.013(REF)
-15 BEND R 1/8



27 11/16
10 3/4
3 3/4
27.0 R
1/8
-11 BEND R 1/8



2 3/8
67 5/16
8.0
.013(REF)
-17 BEND R 1/8



10 3/4
135°
1 1/2
1 1/2
-19 BEND R 1/8

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-18194 A

LDW280-18194 A

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18194	A
MODEL OR END ITEM	SCALE-NONE		SHEET 3.00	

ENG 735 6-64

NAS 9-1100

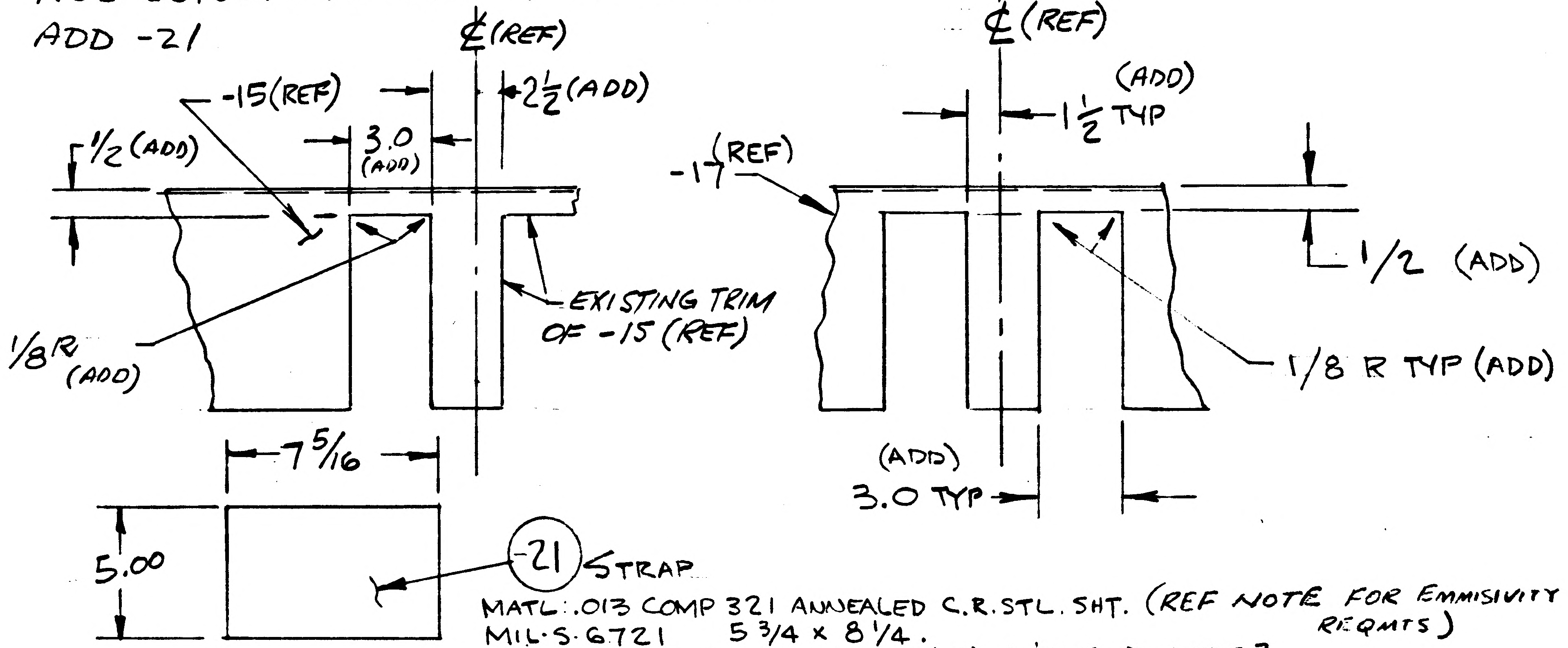
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18194
EO NO. B1
CONTROL INFO NO. LDW 280 A-4425

ADD CUTOUTS TO -15 & -17 AS SHOWN
ADD -21



℄ (REF)
-15 (REF)
2 1/2 (ADD)
1/2 (ADD)
3.0 (ADD)
1/8 R (ADD)
EXISTING TRIM OF -15 (REF)
7 5/16
5.00
℄ (REF)
(ADD) 1 1/2 TYP
-17 (REF)
1/2 (ADD)
1/8 R TYP (ADD)
(ADD) 3.0 TYP
-21 STRAP

MATL: .013 COMP 321 ANNEALED C.R.STL. SHT. (REF NOTE FOR EMMISIVITY REQMTS)
MIL-S-6721 5 3/4 x 8 1/4.
N/A LDW 280-28813 LTA-8(18) I&T=E, DOC TYPE 2
.5 REQD/MOD. CONTRACT NO. NAS 9-1100, LINE ITEM #1
THERMAL SHIELD (2)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: WIRE EXIT REQUIRED FOR HEATER PANELS ON BASE HEAT SHIELD

DESCRIPTION OF EO: ADDED SLOTS TO -15 & -17 CREATED -21 STRAP

GAEC EO RELEASE: 12/17

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK -15 -17 SCRAP

APPROVED BY									
DATE	12/15/66			12/15/66			12/16/66	12/16/66
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SKIN D.S. REIN. BASE HEAT SHIELD - HEATER
DRAWING NO. LDW280-18194
EO NO. B1

ISSUED BY R QUEVEDO/STRAKOSCH X-1392 SECTION V. D. I. GROUP NO. 335 PL 35

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	[redacted] APPD
											REWORK	SCRAP			
A	1	1.00 1.10 2.00 3.00						E.O. A1	INITIAL DRAWING RELEASE, PARTS MADE PER E.O.	LM-2	NOT	REQ'D	KORDES 12-21-66		
B	1	1, 1.10						EO B1	ADDED LM-3 THRU LM-15 REQUIREMENTS FOR -11, -13, -15, -17, -19 & -21.	LM-3 THRU LM-15	NOT	REQ'D		1/12/67	
	2	1.10, 1.01							REF EOB1 ADDED LM-3 THRU LM-15 REQUIREMENTS FOR -16 IN DESCRIPTION. EG	LM-3 THRU LM-15	NOT	REQ'D	WCG		

FOR CONTINUATION OF REVISIONS SEE SHEET ________

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18195	B
SCALE NONE		SHEET 1.10	

ENG 77.3 5-65

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23539	LM-15(45)	1
↑	↑	LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
	↓	LM-3(33)	1
	LDW280-23539	LM-2(32)	1
	LDW280-23530	LM-15(45)	1
	↑	LM-14(44)	1
↓	↓	LM-13(43)	1
LM	LDW280-23530	LM-12(42)	1

PART NO. LDW280-18195-15 (CON'D) GAEC SCH NO. 51-4

LDW280-18195 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23530	LM-11(41)	1
↑	↑	LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
↓	↓	LM-3(33)	1
LM	LDW280-23530	LM-2(32)	1
PART NO:	LDW280-18195-15		
LM	LDW280-54533	LM-15(45)	1
LM	LDW280-54533	LM-14(44)	1
LM	LDW280-54533	LM-13(43)	1

PART NO. LDW280-18195-13 (CON'D) GAEC SCH NO. 51-4

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54533	LM-12(42)	1
↑	↑	LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
	↓	LM-5(35)	1
	LDW280-54533	LM-4(34)	1
↓	LDW280-23533	LM-3(33)	1
LM	LDW280-23533	LM-2(32)	1
PART NO:	LDW280-18195-13		
LM	LDW280-54531	LM-15(45)	1EA
↑	↑	LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
		LM-6(36)	1EA
	↓	LM-5(35)	1EA
	LDW280-54531	LM-4(34)	1EA
↓	LDW280-52531	LM-3(33)	1EA
LM	LDW280-52531	LM-2(32)	1EA

PART NO. LDW280-18195-11 & -21 GAEC SCH NO. 51-4

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00			
REV	B	B	B		B			
SHEET	1.01							
REV	B							
SHEET								
REV								

LAST SECT LTR USED	—	GRUMMAN REL INFO B	
		PRIM NO.	LE(001)
LAST DASH NO. USED	-21	207	MP-1-A B-1-16-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	G.KORDES 12-21-66	RELIABILITY	
LAYOUT BY	R.FLANDERS		
CHECKED BY	EG wsa 1-4-66		
GR LDR			
VEH DES INT	[illegible]		
STRUCTURES	[illegible] 1/12/67	PROJ ENGR	[illegible] 1/12/67
STRUCTURES		REL GROUP	[illegible] 1/19/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE - QUAD I, II, & IV
DIAGONAL TEE SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18195	B
SCALE	NONE	SHEET 1.00 OF 5	

ENG 77.1 12-65

01

NAS 9-1100

LDW280-18195 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23536	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
		LM-3(33)	1 EA
LM	LDW280-23536	LM-2(32)	1 EA
PART NO. LDW280-18195-17&-19		GAEC SCH NO. 51-4	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23530	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	1
LM	LDW280-23530	LM-2(32)	1
PART NO. LDW280-18195-16		GAEC SCH NO. 51-4	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET									
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL INFO

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES

~~ORIG DWG AUTH~~

DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
~~LINE ITEM~~
DOCUMENTATION TYPE

DRAWN BY
LAYOUT BY
CHECKED BY
PROJ ENGR
REL ~~GROUP~~

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18195	B
SCALE NONE		SHEET 1.01 OF	

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18195-21	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.071 X 2 X 3	T6	88	
		LDW280-18195-19	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.071 X 2 X 3	T6	88	
		LDW280-18195-17	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.071 X 2 X 3	T6	88	
		LDW280-18195-16	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.071 X 2 X 3	T6	88	
		LDW280-18195-15	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.071 X 2 X 3	T6	88	
		LDW280-18195-13	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.071 X 2 X 3	T6	88	
		LDW280-18195-11	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.071 X 2 X 3	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18195	B
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

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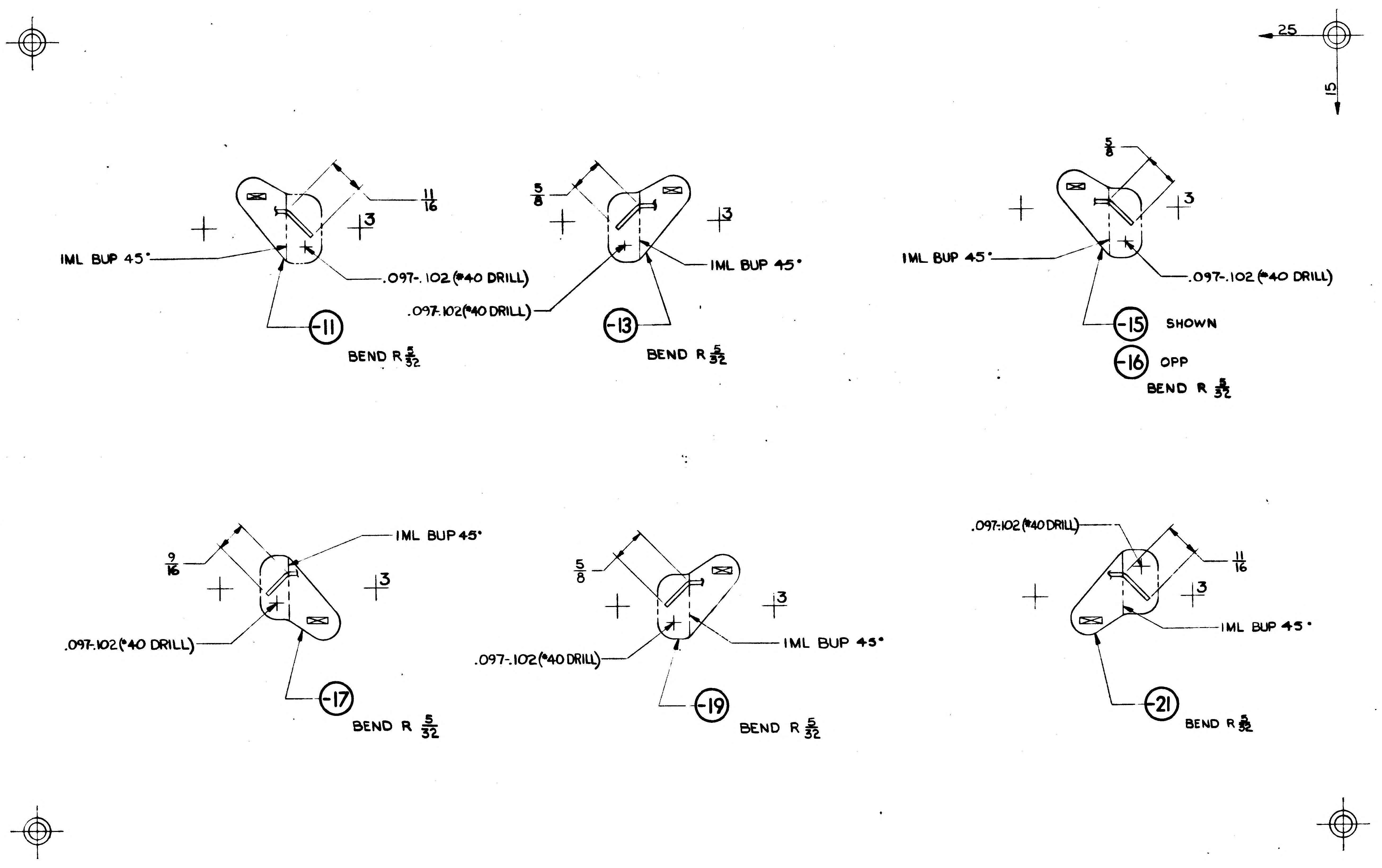
NAS 9-1100


25
15
IML BUP 45°
$\frac{11}{16}$
3
.097-.102 (#40 DRILL)
-11
BEND R $\frac{5}{32}$
$\frac{5}{8}$
3
IML BUP 45°
.097-.102(#40 DRILL)
-13
BEND R $\frac{5}{32}$
$\frac{5}{8}$
3
IML BUP 45°
.097-.102 (#40 DRILL)
-15 SHOWN
-16 OPP
BEND R $\frac{5}{32}$
$\frac{9}{16}$
IML BUP 45°
3
.097-.102(#40 DRILL)
-17
BEND R $\frac{5}{32}$
$\frac{5}{8}$
3
.097-.102(#40 DRILL)
IML BUP 45°
-19
BEND R $\frac{5}{32}$
.097-.102(#40 DRILL)
$\frac{11}{16}$
3
IML BUP 45°
-21
BEND R $\frac{5}{32}$

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMPPART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18195 B

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE D	CODE IDENT NO. 26512	LDW280-18195	B
LM				
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

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NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1365
CONTROL INFO NO. LDW280B 7424

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18195	C1	SEE DWG
-18196	B2	↕
-18197	B3	↕
-18198	B2	↕
-18199	B2	↕
-18200	B2	↕
-18201	B4	↕
-18202	B5	↕
-18206	B4	↕
LDW280-18207	B1	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 1 CCA 1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: SK 4/19/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					NJK			
DATE	4/1/69			4-2-69	4/8/69		4/9/69	4/14/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1365

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH. DES INT GROUP NO. 335 PL. 25

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NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1523
CONTROL INFO NO. LDW280B 8107

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18190✓	SEE DWG	D2
✓ 195✓		C4
✓ 196		B3
197		B4
198		B3
199		B3
200		B3
201		B5
206		B5
LDW280-18223	SEE DWG	B4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 28 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69; JK 8/9/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP	DATE	7-29-69			7/29/69	8-2-69		8/2/69
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

Bauman 8/8/69 ~~GOVT~~

PRIORITY: C. | DRAWING TITLE: SEE DRAWINGS | DRAWING NO. LEO 280 | EO NO. 1523

8-22-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1754
CONTROL INFO NO. LDW280 B 8735

ON THE FOLLOWING DRAWINGS REMOVE LM-10(40) THRU LM-14(44) & LTA-11(23) REQ'TS FOR THE NOTED N/A'S & QTY'S

*DRAWING NO.	QTY *-*	TITLE	N/A *-*-*	CHG NO
✓ LDW280-17695-12	1	ANGLE	LDW280-54524	D4
-14	1	"	↑ -54524	
-13	1	"	-54525	
-14	1	"	↓ -54526	
-11	1	"	LDW280-54526	
✓ LDW280-17696-11	1	STIFFNER	LDW280-54526	D8
-14	1		↓ -54526	
-19	1		LDW280-54526	
✓ LDW280-18065-31	1	CLIP	LDW280-54524	E1
-37	1	"	↑ -54525	
-37	1	"	-54526	
-32	1	"	↓ -54526	
-39	1	"	LDW280-54525	
✓ LDW280-18407-11	1	CHANNEL	LDW280-54526	B4
✓ LDW280-18419-15	1	STIFFNER	LDW280-54526	A6
-21	1	"	LDW280-54526	
✓ LDW280M17814-13	1	FITTING	LDW280-54526	B4
✓ LDW280-18195-15	1	CLIP	LDW280-23530	C6
-16	1	"	LDW280-23530	
✓ LDW280-17733-11	1	STIFFNER	LDW280-23530	C3
-13	1	"	LDW280-23530	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG 61 (5)

REASON FOR EO: ADDITION OF PAYLOAD SPT FITTING IN QUAD I

DESCRIPTION OF EO: FOR (*) REMOVED (*-*)/MOD FOR N/A (*-*-*) EFF LM-10(40) THRU LM-14(44) & LTA-11(23)

GAEC EO RELEASE: JK 11/14/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		Thru LM-14(44)	
		& LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY				GH RJT	NH		
DATE	11/11/69			11-11-69	11-11-69		11/13/69
	VDI						

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 1754

11/24/69
ISSUED BY F. Oliveri EXT 86048 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18195		EO NO. C7	
CONTROL INFO NO. LM-2-6059			

IN MOD/BLK FOR -11
DELETE LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3DR/1 (460)
REQUIREMENTS FOR NEXT ASSY LDW280-54531

IN MOD/BLK FOR -19
ADD LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3DR/1(460)
REQUIREMENTS FOR NEXT ASSY LDW280-54531

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3994 PKG 02

REASON FOR EO	DESCRIPTION OF EO	GAEC\ EO RELEASE
TO ELIMINATE INTERFERENCE WITH EQUIPMENT LINES INSTL	IN MOD/BLK FOR -11, DELETED LM-10 THRU LM-14, LTA-11 & LTA-3DR/1 FOR N/A LDW280-54531. FOR -19, ADDED LM-10 THRU LM-14, LTA-11 & LTA-3DR/1 REQMTS FOR NEXT ASSY LDW280-54531	E WB 3-5-70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	
		LTA-11(23)	
		LTA-3DR/1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓	-11	APPROVED BY	RJT			DW	KC	KC	RJT	Bauman
				DATE	3-4-70			3/4/70	2/27/70	2/27/70	3-4-70	2/27/70
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE~DESCENT STAGE~QUAD I, II & IV~DIAGONAL TEE SUPPORT	LDW280-18195	C7

ISSUED BY LIAISON J. MALONEY 2-26-70 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-18195
EO NO. B1
CONTROL INFO NO. LDW 80-3780

IN MODEL BLOCK: ADD LM-3 REQTS.

LDW280-18195-11, -13, -15, -17, -19 & -21 1 REQ'D/MODULE

NEXT ASSY FOR -11 LDW280-52531
" " " -13 LDW280-23533
" " " -15 LDW280-23530 & LDW280-23539
" " " -16 LDW280-23530
" " " -17 & -19 LDW280-23536
" " " -21 LDW280-52531

ADD LM-4 THRU LM-15 REQTS.

LDW280-18195-11, -13, -15, -17, -19 & -21 1 REQD/MODULE

NEXT ASSY FOR -11 LDW280-54531
-13 LDW280-54533
-15 LDW280-23530 & LDW280-23539
-16 LDW280-23530
-17 LDW280-23536
-19 LDW280-23536
-21 LDW280-54531

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: PARTS REQD. FOR LM-3 THRU LM-15

DESCRIPTION OF EO: ADDED LM-3 THRU LM-15 REQTS FOR -11, -13, -15, -17, -19 & -21.

GAEC EO RELEASE: FR 12/16/6

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD.

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	12/1/66				12/14/66		12-14-66	12-15-66
b								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE- DS. QUAD I, II & IV DIAGONAL TEE SUPPORT	LDW280-18195	B1

ISSUED BY R. FLANDERS X1153 12-9-66 SECTION VEH. DES. INT. GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 22.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 547
CONTROL INFO NO. LDW280A-6136

FOR ALL DASH NO.* ON THE FOLLOWING DWGS WHICH HAVE LM-6 EFF ADD LTA-3D/R EFF QTY & N/A TO REMAIN THE SAME AS ON LM-6

DRAWING *	TITLE	CHANGE NO.
LDW280-17787 ✓	SEE DWG	B2
-17792 ✓		B5
-17797 ✓		A2
-17830 ✓		B1
-17841 ✓		A8
-17842 ✓		B1
-17843 ✓		A2
-17844 ✓		A2
-17845 ✓		A2
-17846 ✓		A2
-17850 ✓		B2
-17856 ✓		A2
-17874 ✓		B2
-17882 ✓		B1
-17883 ✓		B3
-17884 ✓		B2
-17885 ✓		B3
-17886 ✓		C4
-17887 ✓		B2
-17891 ✓		A3
-17906 ✓		B1
-17943 ✓		B2
-17948 ✓		B1
-17958 ✓		B2
-17960 ✓		B2
-17973 ✓		A3
-17977 ✓		B1
-17981 ✓		B1
-18064 ✓		B1
-18065 ✓		C1
-18066 ✓		A2
-18067 ✓		A3
-18068 ✓		A2
-18089 ✓		B2
-18090 ✓		B4
-18137 ✓		B2
-18195 ✓		C2
LDW280 -18202		B2
LDW280P 18133		A2
LDW 280-54684		A2
LDW 330-52056		B3
	SEE DWG.	

DETAIL SPEC REQ ☐ CL II ENGRG CHG [✓] CL I ENGRG CHG ☐ LCD19-1242 2

REASON FOR EO: FAILURE OF LTA-3D IN STATIC TEST

DESCRIPTION OF EO: IN M/B FOR * ADDED LTA-3DR EFF

GAEC EO RELEASE: C JK 4/4/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R (46)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD
APPROVED BY: DATE 3/28/67 5 YDI
GROUP LEADER: 3/28/67
STRESS GROUP: 3/31/67
PROJ ENGRG: 3.30.67
4/1/67
PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 547

ISSUED BY G. BARNES/J. STRAKOSCH X1153 SECTION YDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18195
EO NO. C3
CONTROL INFO NO. LDW280B1604

FOR DASH NO'S LISTED ADD LTA-3(13) EFFECTIVITY
N/A & QTY AS NOTED BELOW

DASH NO.	NEXT ASSY	QTY/MOD
-11	LDW 280-23531	1/MOD
-13	LDW 280-23533	1/MOD
-15	LDW 280-23530	1/MOD
-15	LDW 280-23539	1/MOD
-16	LDW 280-23530	1/MOD
-17	LDW 280-23536	1/MOD
-19	LDW 280-23536	1/MOD
-21	LDW 280-23531	1/MOD

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 2134

BPKG3 (5)

GAEC C EO RELEASE: JK 1/27/68

REASON FOR EO: PREPARATION OF LTA-3 FOR DROP TEST

DESCRIPTION OF EO: FOR -11, -13, -15, -16, -17, -19 & -21 ADDED LTA-3(13) REQTS.

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY								
DATE	1/25/68			1/24/68	1/25/68	1/24/68	-26-68	
—	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C

DRAWING TITLE: ANGLE DESCENT STAGE - QUAD I II & IV DIAGONAL TEE SUPPORT

DRAWING NO. LDW280-18195

EO NO. C3

CDR 1/24/68

ISSUED BY G. BARNES / P. THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENG 32.1 REV 3-65
ENGINEERING ORDER

DWG. NO. LDW280-18195
EO NO. C5
CONTROL INFO NO. LDW280B9161

IN MOD BLK. RESTRICT -17 & -21 FOR U-- ON LM-2(32) THRU LM-9(39), LTA-3(13), LTA-11(23) & LTA-3DR(46) WAS USED ~~ON~~ LM-2(32) ~~THRU~~ LM-14(44), LTA-3(13), LTA-11(23) & LTA-3DR(46)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PKG 68

REASON FOR EO: PART REPLACED BY NON-BUCKLING DIAGONAL CONFIGURATION

DESCRIPTION OF EO: IN MOD/BLK, RESTRICTED -17 & -21 TO LM-2(32) THRU LM-9(39), LTA-3(13), LTA-11(23), ~~LTA-3DR(46)~~ BY REMOVING LM-10(40) THRU LM-14(44)

GAEC EO RELEASE: (5) JK 10/24/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	FNR				NM			
DATE	10/23/69			10-23-69	10-23-69		10/24/69	10/24/69

PRIORITY: C
DRAWING TITLE: ANGLE-DIS-QUAD I, II & IV-DIAG. TEE SUPPORT
DRAWING NO.: LDW280-18195
EO NO.: C5

CDR103169
ISSUED BY LANG/SHAPIRO/THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00,1.10, 2.00&3.00						EOAI ®	EO AI, INITIAL DRAWING RELEASE. PARTS MADE PER E O.	LTA-8,LM-1 THRU LM-15	NOT	REQD	CIOFFI 12-7-66		

CHG APPROVED	LTR	~~GROUP LDR~~	VEH. DES. INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
	A		12/20	12/21								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18196	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01 1 NAS 9-1100

LDW280-18196 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28780	LM-15(45)	8 EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5 (35)	
		LM-4(34)	
		LM-3(33)	
		LM-2(32)	
		LM-1 (31)	
LM	LDW280-28780	LTA-8(18)	8 EA
PART NO. LDW280-18196-11, 13 & -14		GAEC SCH NO. 50-2	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	D	GRUMMAN REL INFO A		
		PRIM NO.	6001	
LAST DASH NO. USED	-14	207	MP14	A-12/29/6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 | LINE ITEM #1 | DOCUMENTATION TYPE II

DRAWN BY	N. CIOFFI 12-7-66	RELIABILITY	
LAYOUT BY	J. ROGERS 11-16-66		
CHECKED BY	J.S. 12-10-66		
~~GR. LEADER~~			
VEH. DES. INT	[illegible] 12/16/66		
STRUCTURES	[illegible] 12/21/66	PROJ ENGR	[illegible] (UR) 12-21
STRUCTURES	KEP 12/21	REL GROUP	[illegible] 12/22/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DECENT STAGE UPPER
OUTRGR PRESSURE VENT SUPT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18196	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18196-14	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	.020 X 4 X 4	NONE	38	
								LDW280-18196-13	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	020 X 4 X 4	NONE	88	
								LDW280-18196-11	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	020 X 4 X 5	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18196	A

SCALE NONE

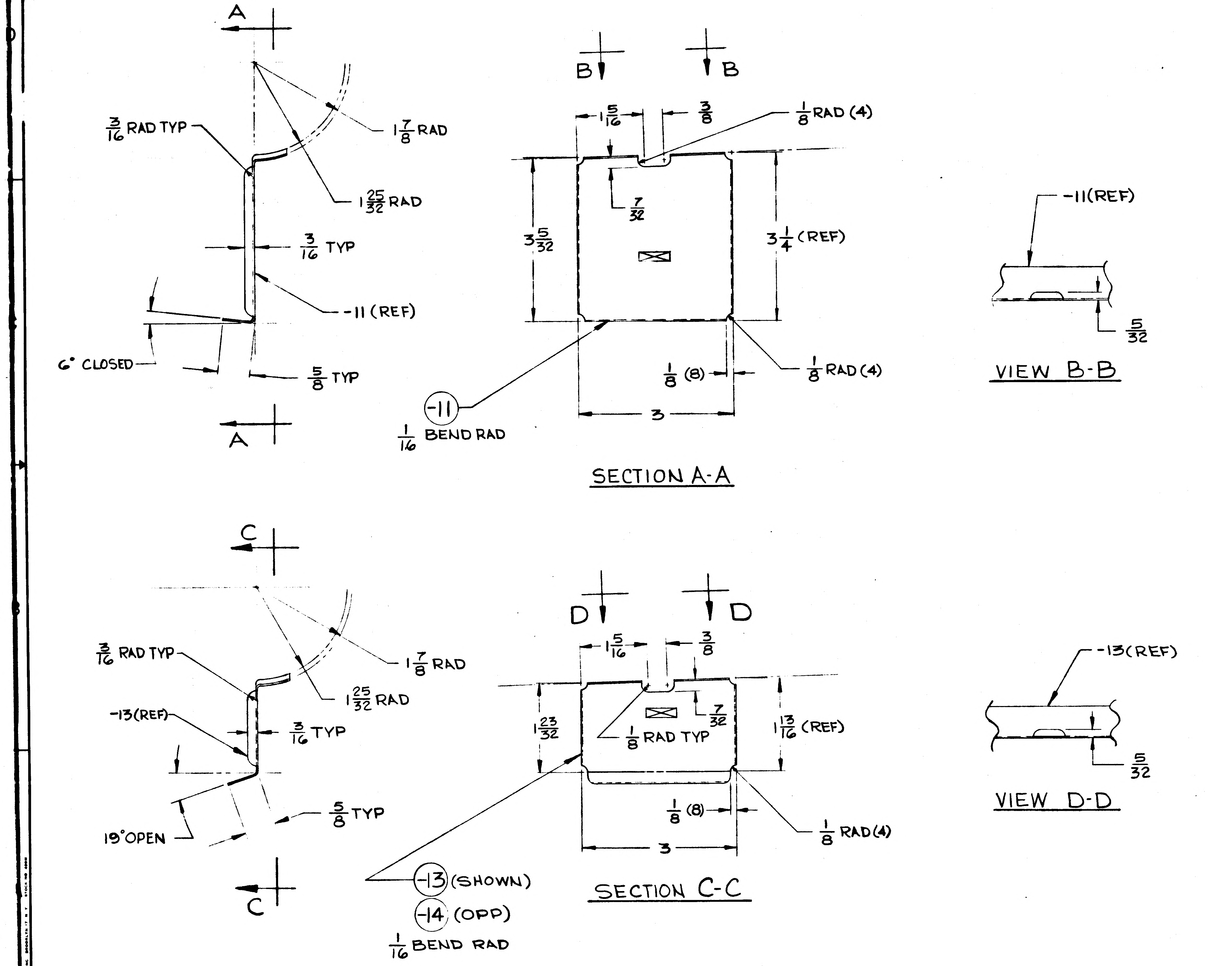
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

LDW280-18196 A


A
A
3/16 RAD TYP
1 7/8 RAD
1 25/32 RAD
3/16 TYP
-11 (REF)
6° CLOSED
5/8 TYP
B
B
1 5/16
3/8
1/8 RAD (4)
7/32
3 5/32
3 1/4 (REF)
1/8 (8)
1/8 RAD (4)
3
-11
1/16 BEND RAD
SECTION A-A
-11(REF)
5/32
VIEW B-B
C
C
3/16 RAD TYP
1 7/8 RAD
1 25/32 RAD
-13(REF)
3/16 TYP
19° OPEN
5/8 TYP
D
D
1 5/16
3/8
1 23/32
7/32
1/8 RAD TYP
1 13/16 (REF)
1/8 (8)
1/8 RAD (4)
3
-13 (SHOWN)
-14 (OPP)
1/16 BEND RAD
SECTION C-C
-13(REF)
5/32
VIEW D-D

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACFS.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM LM	SIZE D	CODE IDENT NO. 26512	LDW280-18196	A
	SCALE FULL		SHEET 3.00	

LDW280-18196 A

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1365
CONTROL INFO NO. LDW280B 7424

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280-18195	C1	SEE DWG
✓ -18196	B2	
-18197	B3	
-18198	B2	
-18199	B2	
-18200	B2	
-18201	B4	
-18202	B5	
-18206	B4	
LDW280-18207	B1	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 1 CC.4 1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: ∅ 4/10/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	-	LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	4/?/69			PSF 4-2-69	NH 4/8/69		4/9/69	4/?/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1365

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1523
CONTROL INFO NO. LDW 280B 8107

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 ~~(40)~~ [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №	
✓ LDW280-18190 ✓	SEE DWG	D2	
✓ 195 ✓		C4	
✓ 196 ✓		B3	
197		B4	
198		B3	
199		B3	
200		B3	
201		B5	
206		B5	
LDW280-18223	SEE DWG	B4	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 28 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69; JK 8/9/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted])	
		(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	PJT			[illegible]	M		Baumann
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8-2-69		8/2/69 8/8/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C.	SEE DRAWINGS	LEO 280	1523

8-22-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1723
CONTROL INFO NO. LDW 280 B7977

IN M/B FOR ALL DWGS LISTED REMOVE EFF LM-10(40) THRU LM-14(44)

DRAWING NO.	DASH NO.*	N/A WAS	CHANGE LETTER
LDW 280 -28780	-5 & -6	LDW 280 -54509	B4
-18196	-11, -13 & -14	-28780	B5
-18197	-11, -15, -16 -17, -18, -19	-28780	B6
-18198	-13	-28780	B5
-18199	-11	-28780	B5
LDW 280 -18200	-11, -13 & -15	LDW 280 -28780	B5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG 84 (5)

REASON FOR EO: PARTS NO LONGER REQ'D

DESCRIPTION OF EO: FOR * REMOVED EFF LM-10(40) THRU LM-14(44)

GAEC EO RELEASE (E) 10-9-69 10/10/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

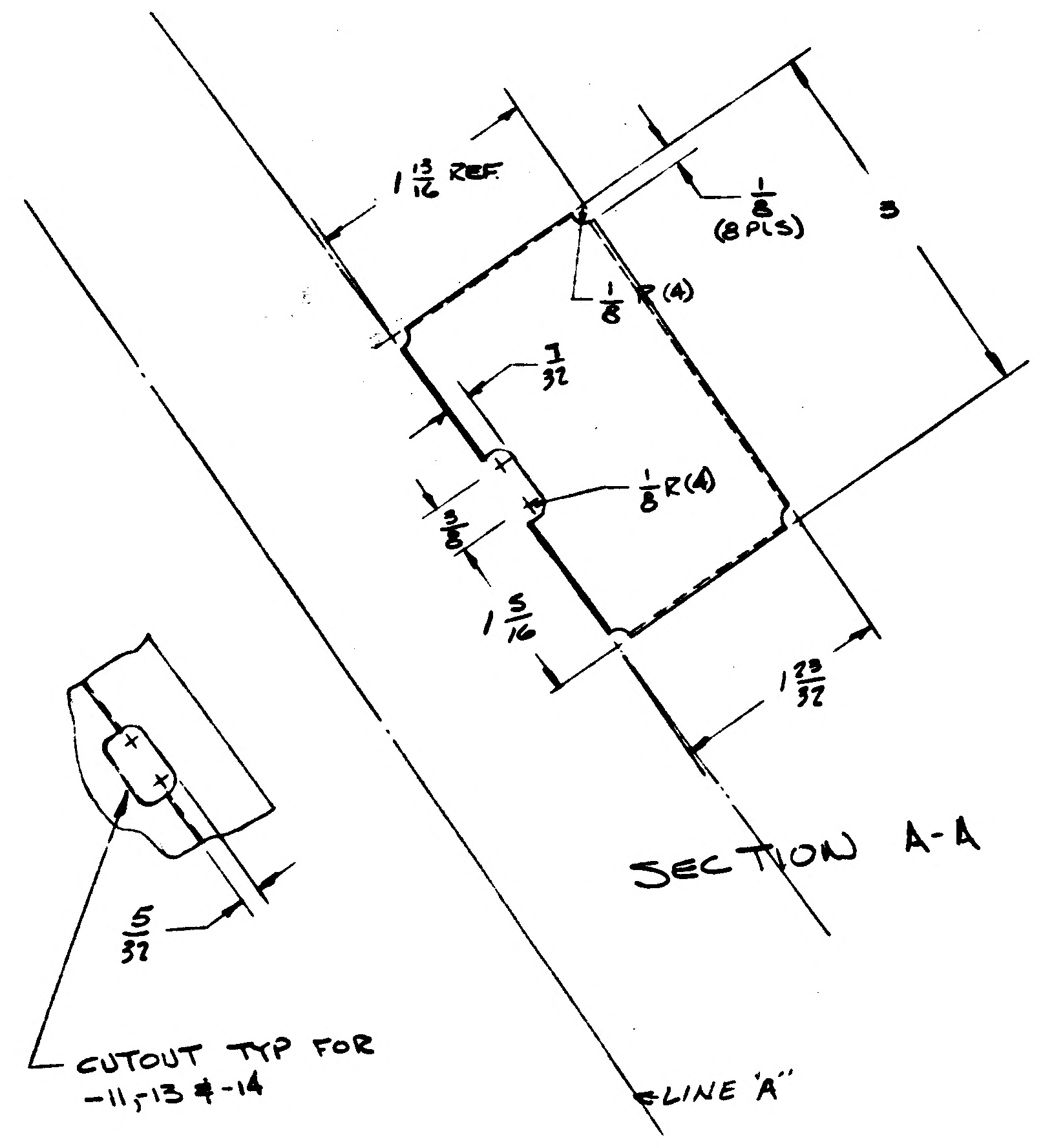
		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	FDR							Bauman
DATE	10/8/69			10/6/69	10/8/69		10/8/65	10/10/69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1723

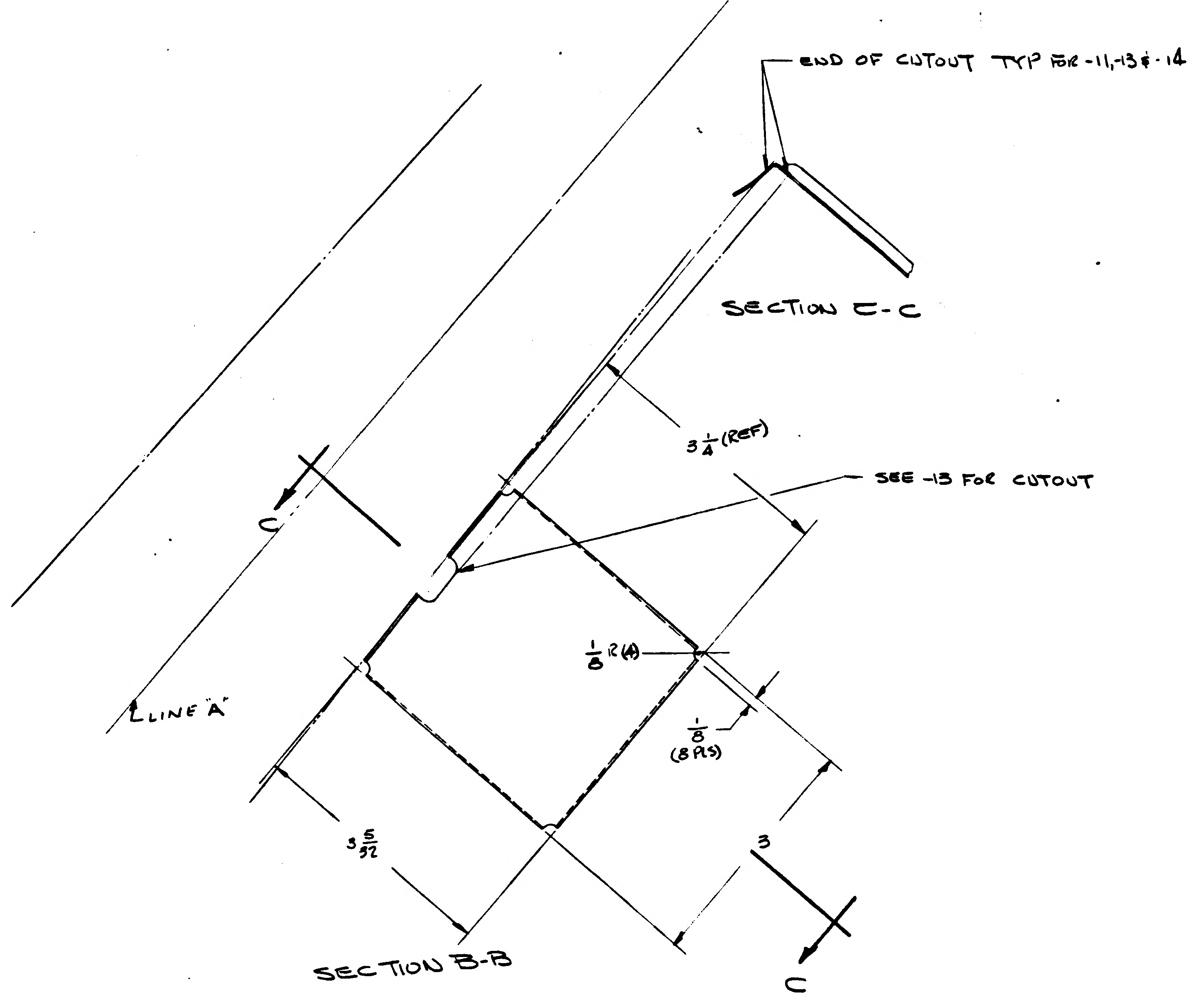
CDR 010970
ISSUED BY R. HELMICKI x86046 SECTION VDI GROUP NO. 335 PL 25

01

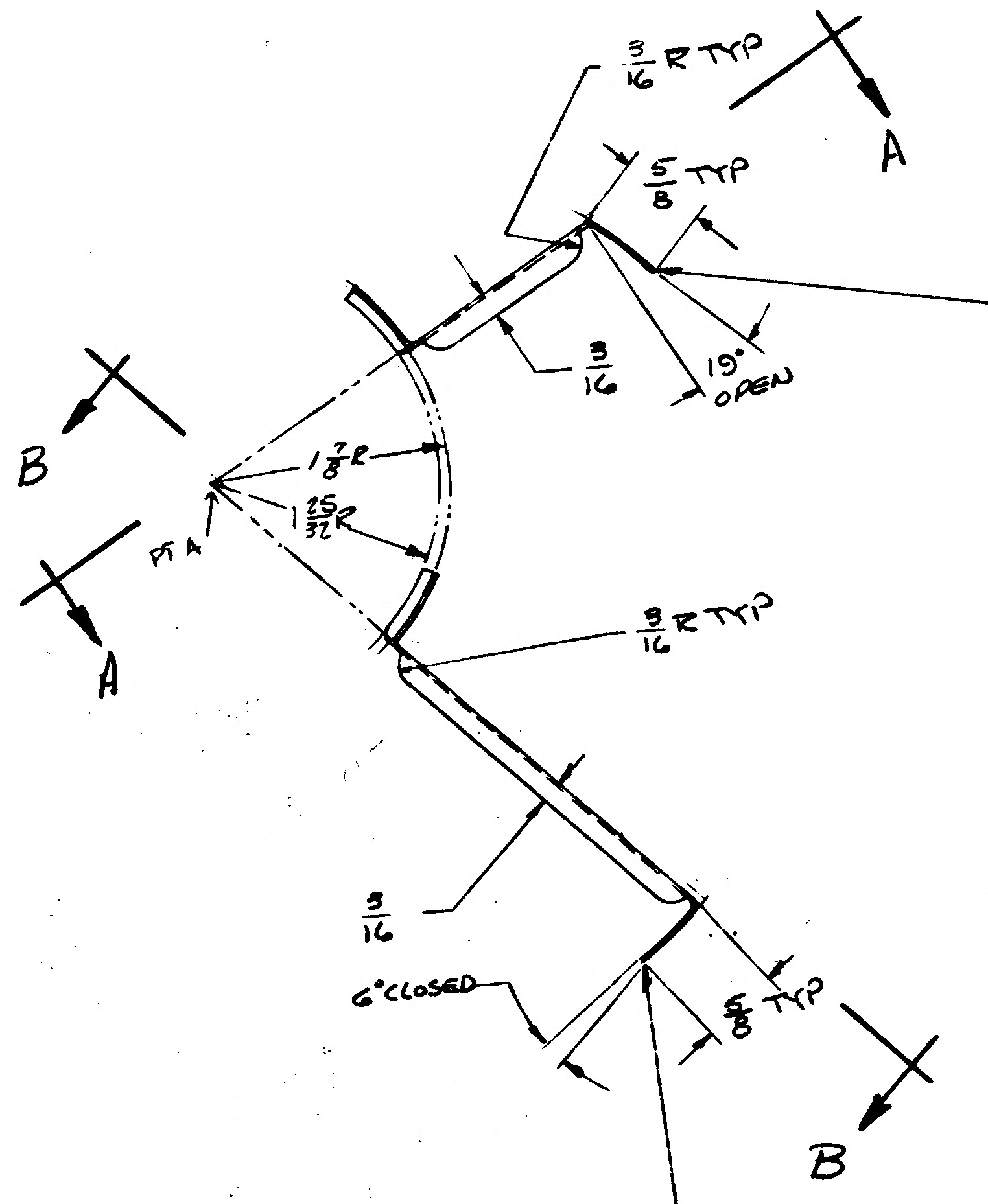
NAS 9-1100



1 13/16 REF
1/8 (8 PLS)
3
1/8 R(4)
3/32
1/8 R(4)
3/8
1 5/16
1 29/32
5/32
CUTOUT TYP FOR -11, 13 & -14
LINE 'A'
SECTION A-A



END OF CUTOUT TYP FOR -11, 13 & -14
SECTION C-C
3 1/4 (REF)
SEE -13 FOR CUTOUT
C
1/8 R(4)
1/8 (8 PLS)
LINE 'A'
3 5/32
3
C
SECTION B-B



3/16 R TYP
A
5/8 TYP
3/16
15° OPEN
B
1 7/8 R
1 25/32
PT A
A
3/16 R TYP
3/16
6° CLOSED
5/8 TYP
B

LDW280-18196-13 ZEE SHN
LDW280-18196-14 ZEE OPP
MAKE FROM 2024-T3 AL ALLOY. QQ-A-250/4
SHEET BARE .020 THICKNESS B.R. 1/16
N/A LDW280-28780 LTA 8(18) LM1(31) THRU LM15(45)
8 EA. REQ'D/MOD I & T-E

LDW280-18196-11 ZEE
MAKE FROM 2024-T3 AL ALLOY QQ-A-250/4
SHEET BARE .020 THICKNESS B.R. 1/16
N/A LDW 280-28780 LTA8(18) LM1(31) THRU LM15(45)
8 REQ'D/MOD I & T-E

FINISH: #88 (ANODIZE) LSP 14-9030
TOL: FRACTIONAL ± 1/32 ANGLE ± 1/2° DECIMAL ±.020
CONTRACT # NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

N/A LDW 280-28780 CONTROL # LDW280A-228

*DRAWING NOT MADE

CDR 11/18/66

(2)

DETAIL SPEC REQD		CLASS II ENGRG CHG	✓	CLASS I ENGRG CHG	CONTROL INFO NO. LDW280A3204

REASON FOR EO: TO PROVIDE PROPER VENTING, (THERMO REQUIREMENT)

DESCRIPTION OF EO: E.O. A1, INITIAL DRAWING RELEASE, PARTS MADE PER E.O

GRUMMAN EO RELEASE: CE 11/17/66

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18),	
LM		LM-1 (31)	
LM		THRU	
LM		LM-15 (45)	

DRAWING REVISION REQD		DISPOSITION OF PARTS										
REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP	BY / DATE	5 VDI	~~SUPPORT~~ THERMO	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	~~CONT~~
*					11/16/66	11/16/66		11/16/66	11/16/66		11-16-66	11/16/66

PRIORITY: C

DRAWING TITLE: ZEE ~ D/S UPPER OUTRGR PRESS VENT SUPT

ENGINEERING ORDER
DRAWING NO. LDW280-18196
EO NO. A1

J. ROGERS / J. STRAKOSCH X1392
ISSUED BY P. WEISSLITZ
SECTION VEH DES INT
GROUP NO. 335 PL 35
CODE IDENT NO. 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32.3 REV 3-65

CDR - 11/18/66

NAS 9-1100

ENG 32.2 10-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1088
CONTROL INFO NO. LDW280 B4985		

IN M/B FOR THE FOLLOWING PARTS AND QUANTITIES NOTED ADD TM-5/R (65) REQUIREMENTS.

* PART NO.	TITLE	QUANTITY	NEXT ASSY	CHANGE NO.
LDW280-28780-5	SEE DWG	3	LTM280-50644	B1
LDW280-28780-6		3	LTM280-50644	
LDW280-18196-11		6	LDW280-28780	B1
LDW280-18196-13		6		
LDW280-18196-14		6		
LDW280-18197-11		6		B2
LDW280-18197-15		6		
LDW280-18197-16		6		
LDW280-18197-17		6		
LDW280-18197-18		6		
LDW280-18197-19		6		
LDW280-18198-15		12		B1
LDW280-18198-17		6		
LDW280-18198-19		6		
LDW280-18199-11		6		B1
LDW280-18200-11		12		B1
LDW280-18200-13		6		
LDW280-18200-15		6	LDW280-28780	
LDW280-53672-1		1	LTM280-50644	B10
LDW280-53672-2		1		
LDW280-53672-3		2		
LDW280-53672-4		2		
LDW280-53672-7		3		
LDW280-53672-8		3	LTM280-50644	
LDW280-18607-11		6	LDW280-53672	A6
LDW280-18607-13		6		B6
LDW280-53584-51		3		
LDW280-53584-52		3		
LDW280-53584-53		3		
LDW280-53584-54		3	LDW280-53672	
LDW280-53731-1		6	LTM280-50644	B5
LDW280-53731-5	SEE DWG	6	LTM280-50644	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3075 PKG 4 SHT 2 CCA 596 (5)

REASON FOR EO: SHIELDING ON OUTRIGGER REQ'D

DESCRIPTION OF EO: FOR * ADDED TM-5/R (65) EFFECTIVITY

GAEC EO RELEASE: (2) C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R (65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE		RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
✓		NOT REQD		8/6/68 VDI			PJT 8-3-68	NM 8-6-68		AC 8-15-68

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 1088

PLT 25

CDR 081468

ISSUED BY MARZELLA 87222

GROUP VDI (335)

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1656
CONTROL INFO NO. LDW280(3781

THIS LEO CANCELS CHANGES LISTED ON LEO 280-1523 FOR THE FOLLOWING DRAWINGS

CANCELLED CHG. №		TITLE	DRAWING №	CANCELLING CHG. №
E.O.	B-3	SEE DWG.	LDW 280-18196	B4
	B-4		-18197	B5
	B-3		-18198	B4
	B-3		-18199	B4
E.O.	B-3	SEE DWG.	LDW 280-18200	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG. 99 PG. 94

(5)

REASON FOR EO: VENT FORMER INSTL. NOT REQ'D FOR DROP OR DYNAMIC TESTS

DESCRIPTION OF EO: CANCELS (NOTED) CHG'S ON LEO 280-1523

GAEC EO RELEASE: 8-26-69, 8/29/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	PST						
DATE	8-20-69			8/20/69	8/12/69		8/22/69

PRIORITY

DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1656

8/29/69
ISSUED BY M.H.LAMB/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18197 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28780	LM-15(45)	8 EA
LM		LM-14(44)	8 EA
LM		LM-13(43)	8 EA
LM		LM-12(42)	8 EA
LM		LM-11(41)	8 EA
LM		LM-10(40)	8 EA
LM		LM-9(39)	8 EA
LM		LM-8(38)	8 EA
LM		LM-7(37)	8 EA
LM		LM-6(36)	8 EA
LM		LM-5(35)	8 EA
LM		LM-4(34)	8 EA
LM		LM-3(33)	8 EA
LM		LM-2(32)	8 EA
LM		LM-1(31)	8 EA
LM	LDW280-28780	LTA-8(18)	8 EA
PART NO. LDW280-18197-11, -13, -15 & -16, -17 & -18		GAEC SCH NO. 50-2	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -18

GRUMMAN REL INFO A

PRIM NO. 233 | VE(001) MP-14 | A12-27-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM I

DOCUMENTATION TYPE II

DRAWN BY FITZGERALD 12/13/66

LAYOUT BY J. ROBERTS

CHECKED BY EG 12-14-66

~~GR.LEADER~~

VEH.DES.INT.

STRUCTURES 12/21/66

STRUCTURES 12/21

WEIGHTS

RELIABILITY

PROJ ENGR 12-21

REL GROUP 12/22/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE ~ UPPER OUTRIGGER ~ PRESSURE VENT SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18197 | A

SCALE NONE | SHEET 1.00 OF 4

ENG 77 1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00, 3.00					✓	EO A1 ②	INITIAL DRAWING RELEASE, PARTS MADE PER EO	LTA 8, LM-1 THRU-15	NOT	REQ'D	FITZ-GERALD 12-13-66		

CHG APPROVED	LTR	~~GROUP LDR~~	VEH DES INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
	A		12/20	WJU 12/21							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18197	A

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18197-18	E	BRKT	AL ALLOY SH	QQ-A-250/4	2024-T3	.020 x 3 x 3	NONE	88	
		LDW280-18197-17	↑	BRKT	AL ALLOY SH	QQ-A-250/4	2024-T3	.020 x 3 x 3	NONE	88	
		LDW280-18197-16		CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.020 x 2 x 2	NONE	88	
		LDW280-18197-15		CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.020 x 2 x 2	NONE	88	
		LDW280-18197-13	↓	CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.020 x 2 x 2	NONE	88	
		LDW280-18197-11	E	BRK'T	AL ALLOY SH	QQ-A-250/4	2024-T3	.020 x 3 x 4	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

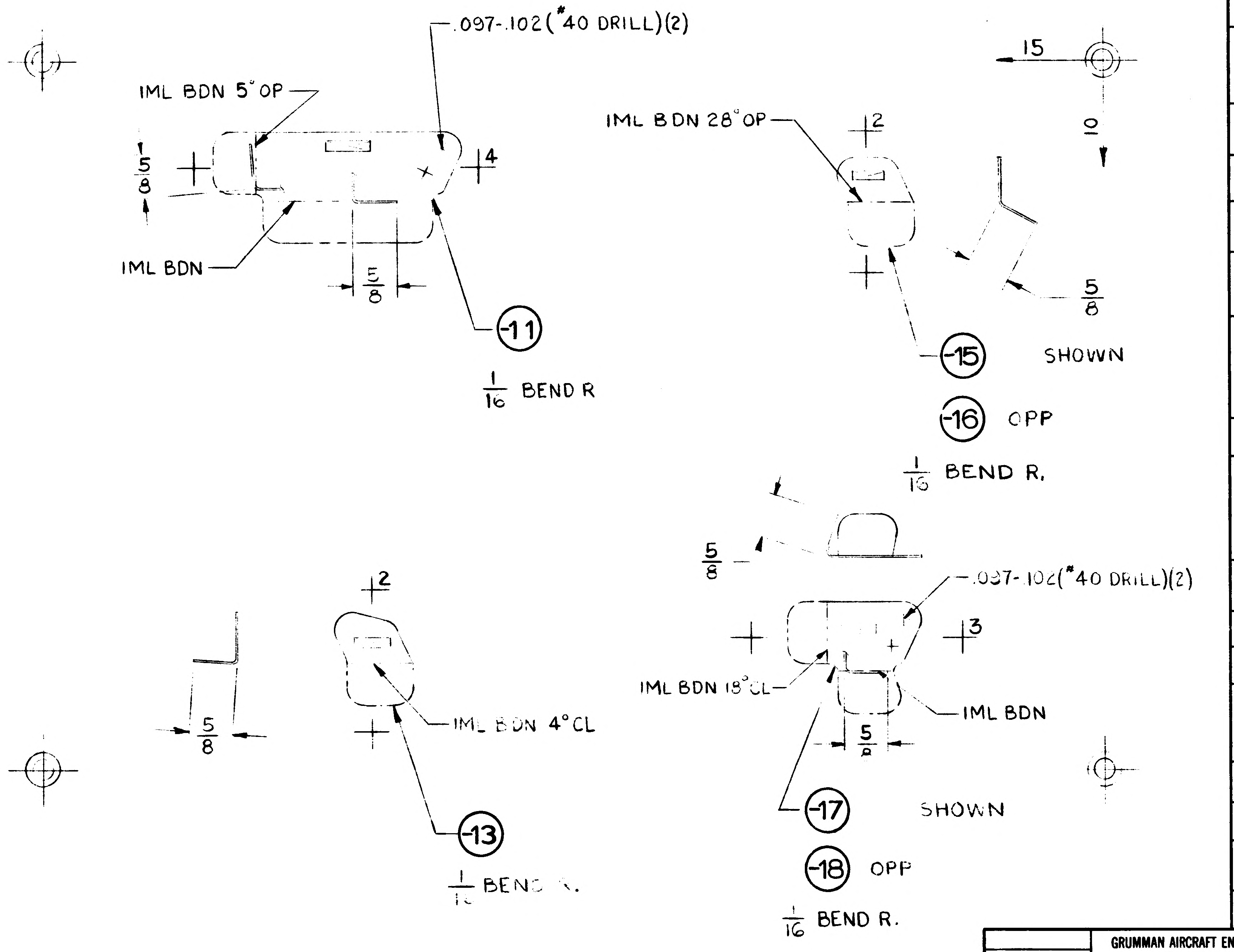
SIZE B
CODE IDENT NO. 26512
LDW280-18197
A
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.



.097-.102(#40 DRILL)(2)
IML BDN 5° OP
5/8
4
IML BDN
5/8
-11
1/16 BEND R
IML BDN 28° OP
2
15
10
5/8
-15 SHOWN
-16 OPP
1/16 BEND R.
5/8
.097-.102(#40 DRILL)(2)
3
IML BDN 18° CL
IML BDN
5/8
-17 SHOWN
-18 OPP
1/16 BEND R.
2
5/8
IML BDN 4° CL
-13
1/16 BEND R.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▨ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE C	CODE IDENT NO. 26512	LDW280-18197	A
LM MODEL OR END ITEM	SCALE FULL		SHEET 3	

LDW280-18197 A

LDW280-18197 A

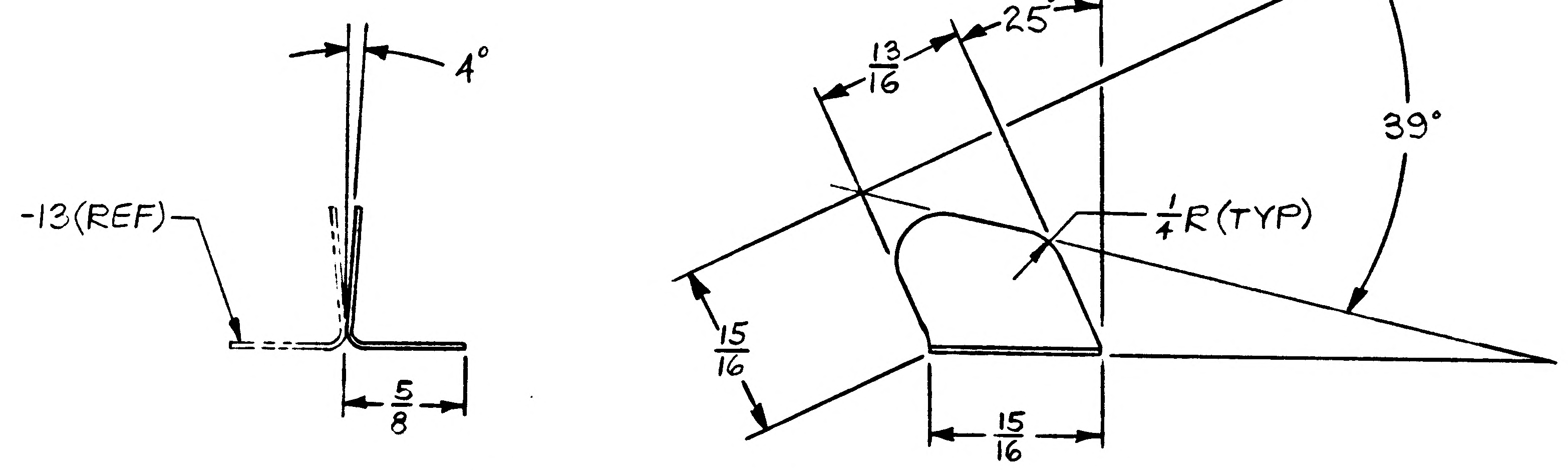
ENG 73-9 11-64
QR 1065

01 141 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18197		EO NO. B1
CONTROL INFO NO. LM-2-3112		



LDW280-18197-19

IN FLD/DWG, B/M & MOD/BLK, DELETE -13 & REPLACE WITH -19
(-19 IS IDENTICAL TO -13 EXCEPT AS SHOWN ABOVE)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
REVISION REQD DUE TO REDESIGN OF LOCALIZED AREA	IN FLD, B/M & MOD/BLK. -19 WAS -13	FR 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	12/20				12/10/66	12/10/66	12-12-66	12-13-66
REVISE DWG	RECORD EO	REWORK	SCRAP	-1-	VD1	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKETS~DESCENT STAGE UPPER OUTRGR PRESS VENT SUPT	LDW280-18197	B1

ISSUED BY LIAISON J. MALONEY 12/9/66 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 10-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 1088
CONTROL INFO NO. LDW280 B4985	

IN M/B FOR THE FOLLOWING PARTS AND QUANTITIES NOTED ADD TM-5/R (65) REQUIREMENTS.

* PART NO.	TITLE	QUANTITY	NEXT ASSY	CHANGE NO.
LDW280-28780-5	SEE DWG	3	LTM280-50644	B1 ✓
LDW280-28780-6		3	LTM280-50644	
LDW280-18196-11		6	LDW280-28780	B1 ✓
LDW280-18196-13		6		
LDW280-18196-14		6		B2 ✓
LDW280-18197-11		6		
LDW280-18197-15		6		
LDW280-18197-16		6		
LDW280-18197-17		6		
LDW280-18197-18		6		
LDW280-18197-19		6		
LDW280-18198-15		12		B1
LDW280-18198-17		6		
LDW280-18198-19		6		
LDW280-18199-11		6		E1
LDW280-18200-11		12		B1
LDW280-18200-13		6		
LDW280-18200-15		6	LDW280-28780	
LDW280-53672-1		1	LTM280-50644	B10
LDW280-53672-2		1		
LDW280-53672-3		2		
LDW280-53672-4		2		
LDW280-53672-7		3		
LDW280-53672-8		3	LTM280-50644	
LDW280-18607-11		6	LDW280-53672	A6
LDW280-18607-13		6		
LDW280-53584-51		3		B6
LDW280-53584-52		3		
LDW280-53584-53		3		
LDW280-53584-54		3	LDW280-53672	
LDW280-53731-1		6	LTM280-50644	B5
LDW280-53731-5	SEE DWG	6	LTM280-50644	

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 PKG 4 SHT 2	CCA 596 (5)

REASON FOR EO	DESCRIPTION OF EO
SHIELDING ON OUTRIGGER REQ'D	FOR * ADDED TM-5/R (65) EFFECTIVITY

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
LM		TM-5/R (65)		✓ REVISE DWG	NOT REQD	VDI		8-3-68	NM 8-6-68			C 8-15-68
				PRIORITY C	DRAWING TITLE NOTED			DRAWING NO. LEO 280				EO NO. 1088

CDR 081468
ISSUED BY MARZELLA 87222 GROUP VDI (335) PLT 25

01 NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1365
CONTROL INFO NO. LDW280B 7424

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18195	C1	SEE DWG
-18196	B2	
-18197	B3	
-18198	B2	
-18199	B2	
-18200	B2	
-18201	B4	
-18202	B5	
-18206	B4	
LDW280-18207	B1	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 1 CCA 1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/19/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				PGF	NJH			
DATE	4/ /69			4-2-69	4/8/69		4/9/69	4/9/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1365

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280		EO NO. 1523
CONTROL INFO NO. LDW 280B 8107		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №	
✓ LDW 280-18190 ✓	SEE DWG	D2	
✓ 195 ✓		C4	
✓ 196 ✓		B3	
197 ✓		B4	
198		B3	
199		B3	
200		B3	
201		B5	
206		B5	
LDW 280-18223	SEE DWG	B4	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 28 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQMTS	8-6-69 JK 8/9/9

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	PJT				M		Bauman
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8-2-69		8/8/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C.	SEE DRAWINGS	LEO 280	1523

8-22-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1656
CONTROL INFO NO. LDW280B 8781

THIS LEO CANCELS CHANGES LISTED ON LEO 280-1523 FOR THE FOLLOWING DRAWINGS

CANCELLED CHG. No	TITLE	DRAWING No	CANCELLING CHG. No
E.O. B-3	SEE DWG.	LDW 280-18196	B4
B-4		-18197	B5
B-3		-18198	B4
B-3		-18199	B4
E.O. B-3	SEE DWG.	LDW 280-18200	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG. 99 PG. 94

REASON FOR EO: VENT FORMER INSTL. NOT REQ'D FOR DROP OR DYNAMIC TESTS

DESCRIPTION OF EO: CANCELS (NOTED) CHG'S ON LEO 280-1523

(5)
GAEC EO RELEASE: JR 8-26-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP NOT REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PSt							
DATE	8-20-69			8/20/69	8/21/69		8/22/69	8/29/69

PRIORITY
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1656

8/29/69
ISSUED BY M.H.LAMB/G.HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1723
CONTROL INFO NO. LDW 280 B7977

IN M/B FOR ALL DWGS LISTED REMOVE EFF LM-10(40) THRU LM-14(44)

DRAWING NO.	DASH NO.-✳	N/A WAS	CHANGE LETTER
LDW 280 -28780	-5 & -6	LDW 280 -54509	B4
-18196	-11, -13 & -14	-28780	B5
-18197	-11, -15, -16 -17, -18, -19	-28780	B6
-18198	-13	-28780	B5
-18199	-11	-28780	B5
LDW 280 -18200	-11, -13 & -15	LDW 280 -28780	B5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 84 (5)

REASON FOR EO: PARTS NO LONGER REQ'D

DESCRIPTION OF EO: FOR ✳ REMOVED EFF LM-10(40) THRU LM-14(44)

GAEC EO RELEASE (E) 10-9-69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	VDI			10-6-69	10/8/69		10/8/69	10/10/69

PRIORITY C

DRAWING TITLE: SEE DWG

DRAWING NO. LEO 280

EO NO. 1723

CDR 010970

ISSUED BY R. HELMICKI ×86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.00, 1.10, 200, 300						E.O. A_1	INITIAL DWG RELEASE. PARTS MADE PER E.O.	NOTED	NOT	REQD	R. LOCKWOOD 12/16/66		
	2							E.O. A2	-17 & -19 WERE -11 & -13. REVERSED ARROW DIRECTION FOR SECTION A-A			✓	EG		

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18198	A
SCALE NONE			SHEET 1.10

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
							(SEE NOTE 3)				
		LDW280-18198-19	E	CAP	AL ALLOY	QQ-A-250/11	6061-O	.025 x 14½ x 14½	FP & SEE NOTE 3	88	
		LDW280-18198-17	E	CAP	AL ALLOY	QQ-A-250/11	6061-O	.025 x 14½ x 14½	FP & SEE NOTE 3	88	
		LDW280-18198-15	E	RING	AL ALLOY	QQ-A-250/11	6061-O	.025 x 14½ x 14½	FP & SEE NOTE 3	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FP	ZYGLO	MIL-I-6866
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

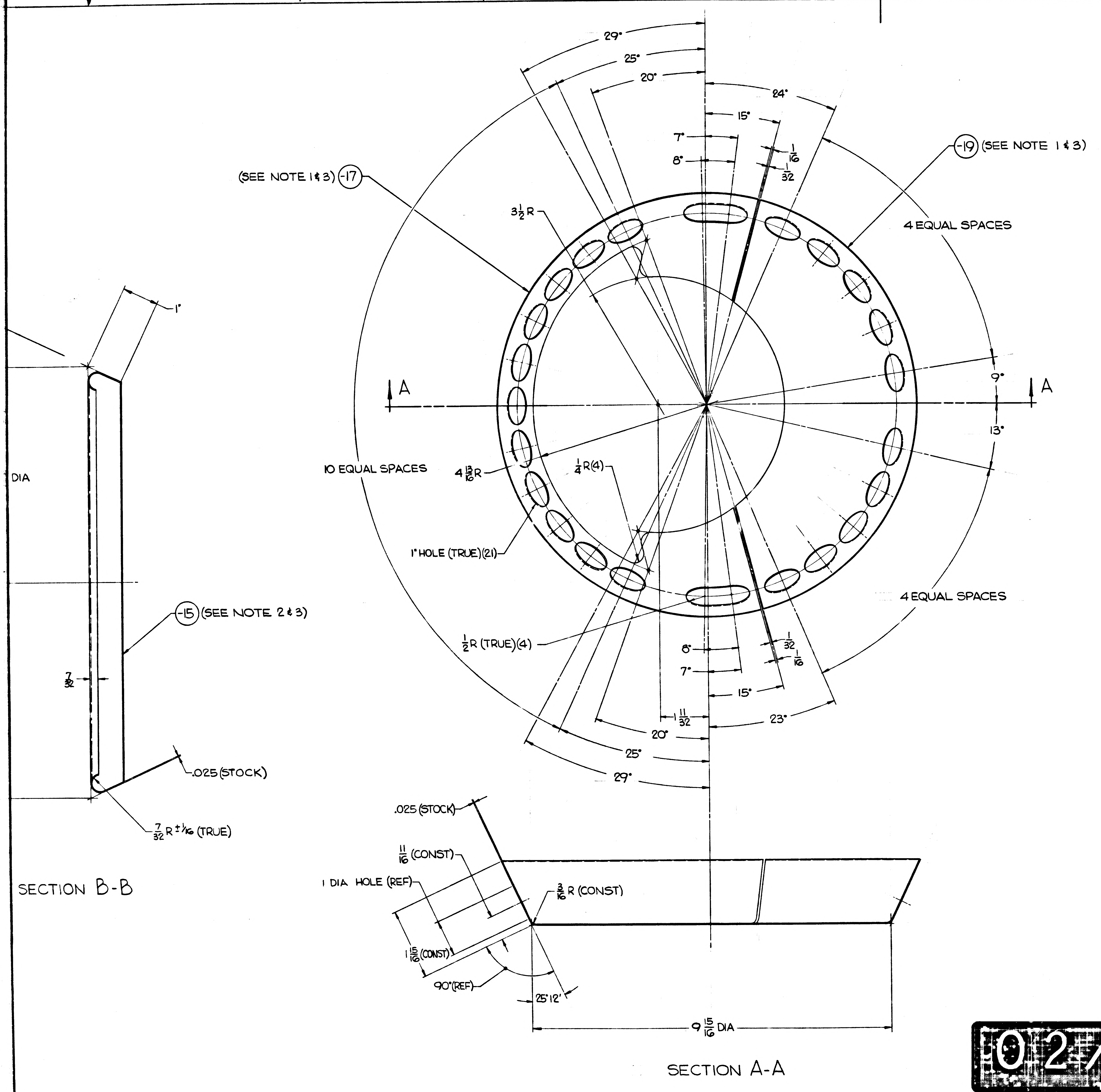
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18198	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

01

NAS 9-1100


4
3
2
1
29°
25°
20°
24°
15°
7°
8°
$\frac{1}{16}$
$\frac{1}{32}$
(SEE NOTE 1 & 3) -17
-19 (SEE NOTE 1 & 3)
$3\frac{1}{2}$R
4 EQUAL SPACES
A
A
9°
13°
10 EQUAL SPACES
$4\frac{13}{16}$R
$\frac{1}{4}$R(4)
1" HOLE (TRUE)(21)
4 EQUAL SPACES
$\frac{1}{2}$R (TRUE)(4)
8°
7°
$\frac{1}{32}$
$\frac{1}{16}$
15°
$1\frac{11}{32}$
20°
23°
25°
29°
1"
DIA
-15 (SEE NOTE 2 & 3)
$\frac{7}{32}$
.025 (STOCK)
$\frac{7}{32}$R ±1/16 (TRUE)
SECTION B-B
.025 (STOCK)
$\frac{11}{16}$ (CONST)
1 DIA HOLE (REF)
$\frac{3}{16}$R (CONST)
$1\frac{15}{16}$ (CONST)
90°(REF)
25°12'
$9\frac{15}{16}$ DIA
SECTION A-A

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	✓
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS [redacted] PER MIL-STD-10	
200 √ FOR ALL [redacted] HOLES	✓
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	✓
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 65

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 67) = 16.7 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 4.175 SQ. FT.

PRINT TRIM LINE

C

B

A

LDW280-18198 A

LDW280-18198 A

NOTE:

1. -17 & -19 TO BE MADE AS ONE PIECE. TO BE CUT AFTER FORMING AS SHOWN.
2. -15 MAY BE MADE AS A COMPLETE RING AND THEN TO BE CUT AFTER FORMING AS SHOWN.
3. -15, -17 & -19 TO BE HEAT TREATED TO A T6 CONDITION AFTER FORMING.
4. MINIMUM MATERIAL THICKNESS .015 FOR -15, -17 & -19.

02/02

NAS 9-1100

Ⓐ1 Ⓐ2

LDW280-18198 SHEET 3.00

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-18198	A
	SCALE FULL			SHEET 3.00

2 FRAMES

LDW280-18198 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28780	LM-15(45)	8EA
		LM-14(44)	8EA
		LM-13(43)	8EA
		LM-12(42)	8 EA
		LM-11(41)	8EA
		LM-10(40)	8EA
		LM-9(39)	8EA
		LM-8(38)	8EA
		LM-7(37)	8EA
		LM-6(36)	8EA
		LM-5(35)	8EA
		LM-4(34)	8EA
		LM-3(33)	8EA
		LM-2(32)	8EA
		LM-1(31)	8EA
LM	LDW280-28780	LTA-8(18)	8 EA
PART NO. LDW280-18198-17 & -19		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28780	LM-15(45)	16
		LM-14(44)	16
		LM-13(43)	16
		LM-12(42)	16
		LM-11(41)	16
		LM-10(40)	16
		LM-9(39)	16
		LM-8(38)	16
		LM-7(37)	16
		LM-6(36)	16
		LM-5(35)	16
		LM-4(34)	16
		LM-3(33)	16
		LM-2(32)	16
		LM-1(31)	16
LM	LDW280-28780	LTA-8(18)	16
PART NO. LDW280-18198-15		GAEC SCH NO. 50-2	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED B

LAST DASH NO. USED -19

GRUMMAN REL INFO A

PRIM NO. 207 AE(001) MP-14 A-1-11-7 EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY R.LOCKWOOD 12/15/66

LAYOUT BY J. ROGERS

CHECKED BY EG 12-22-66

~~GR.LEADER~~

VEH DES INT 1/1/67

STRUCTURES WJH 1/16/67

STRUCTURES IEB 1/9

WEIGHTS

RELIABILITY

PROJ ENGR 1967

REL GROUP 1-10-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CAP
DESCENT STAGE-UPPER OUTRIGGER
PRESS. VENT SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18198 A

SCALE NONE

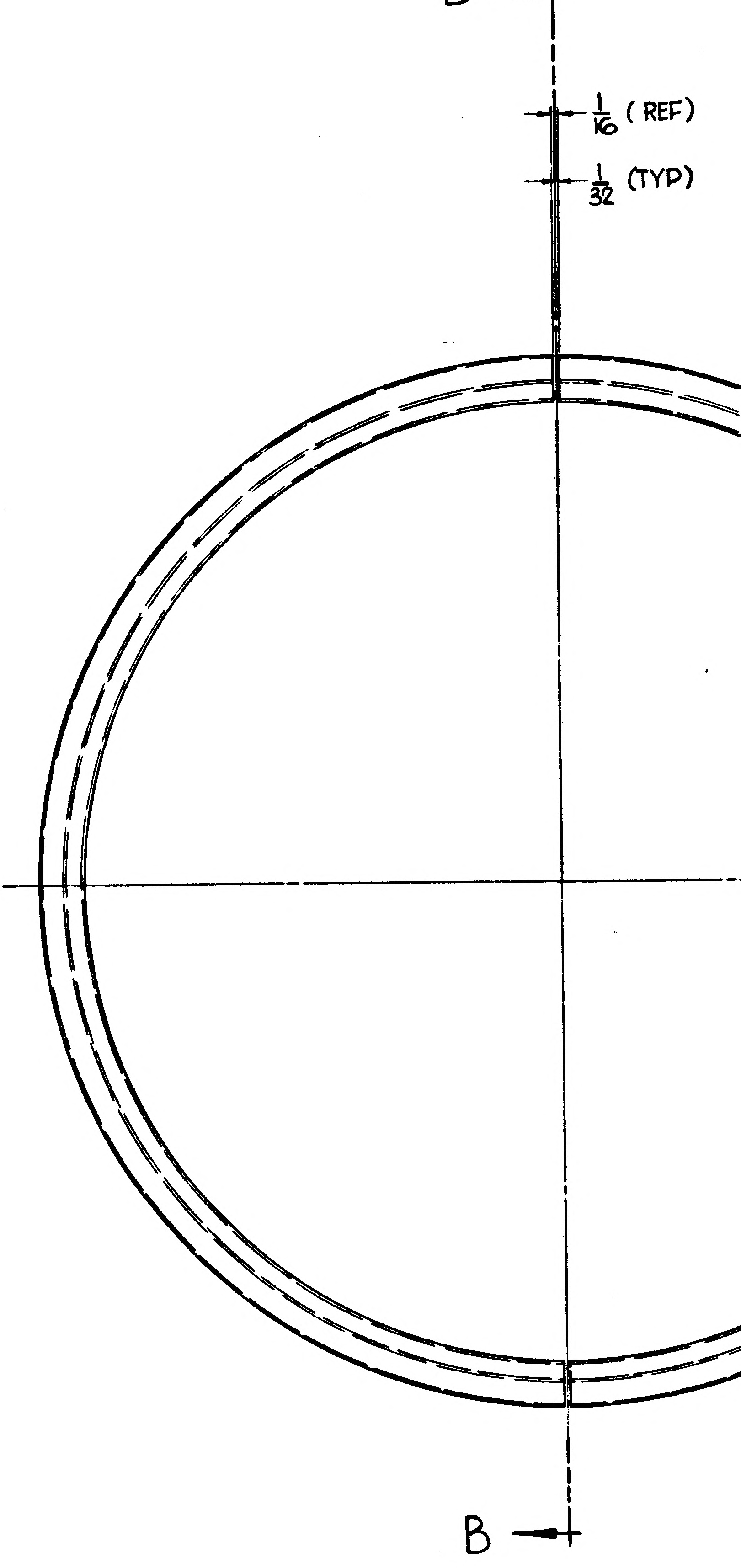
SHEET 1.00 OF 4

ENG 77.1 12-65

01

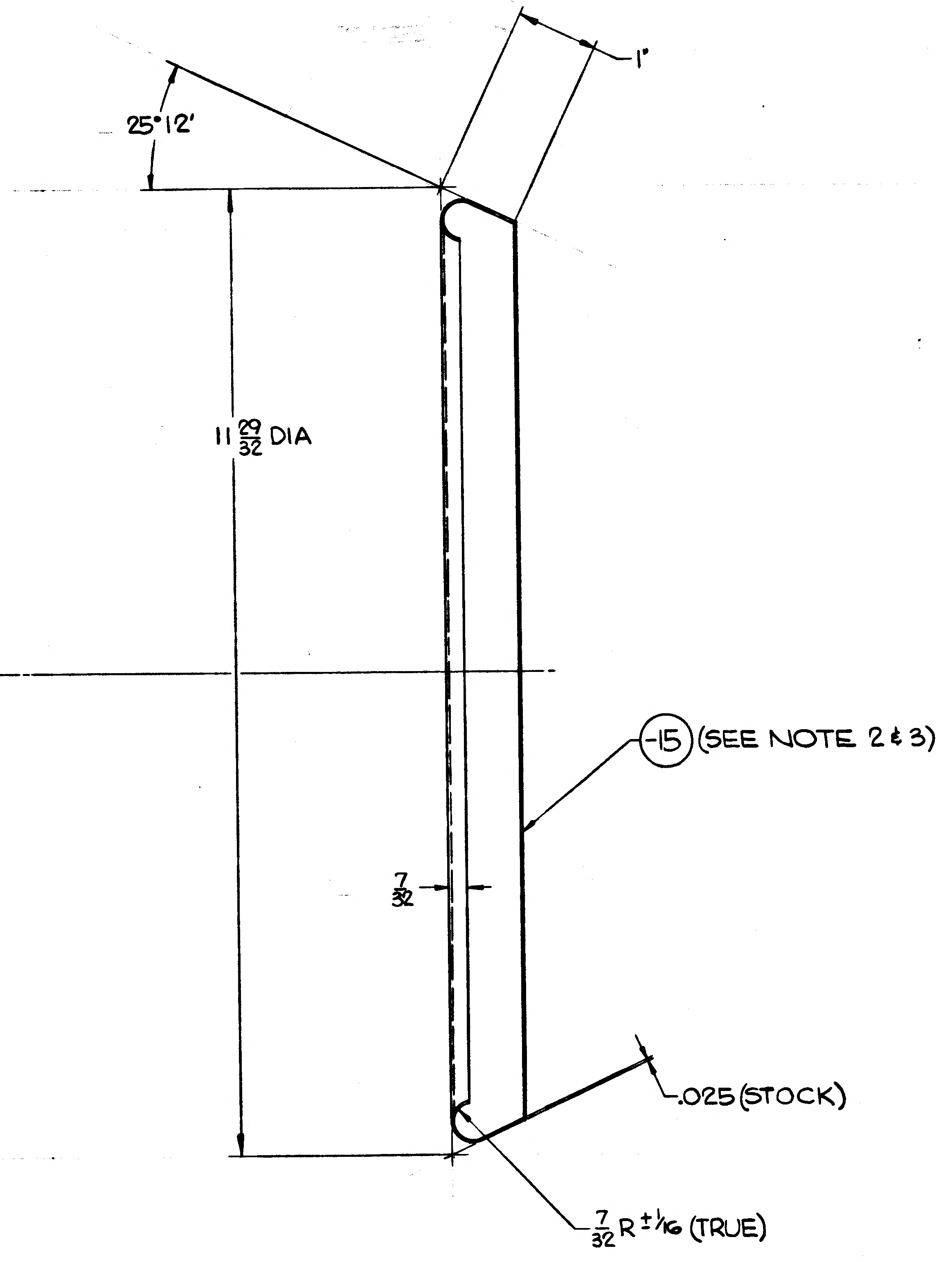
NAS 9-1100

C



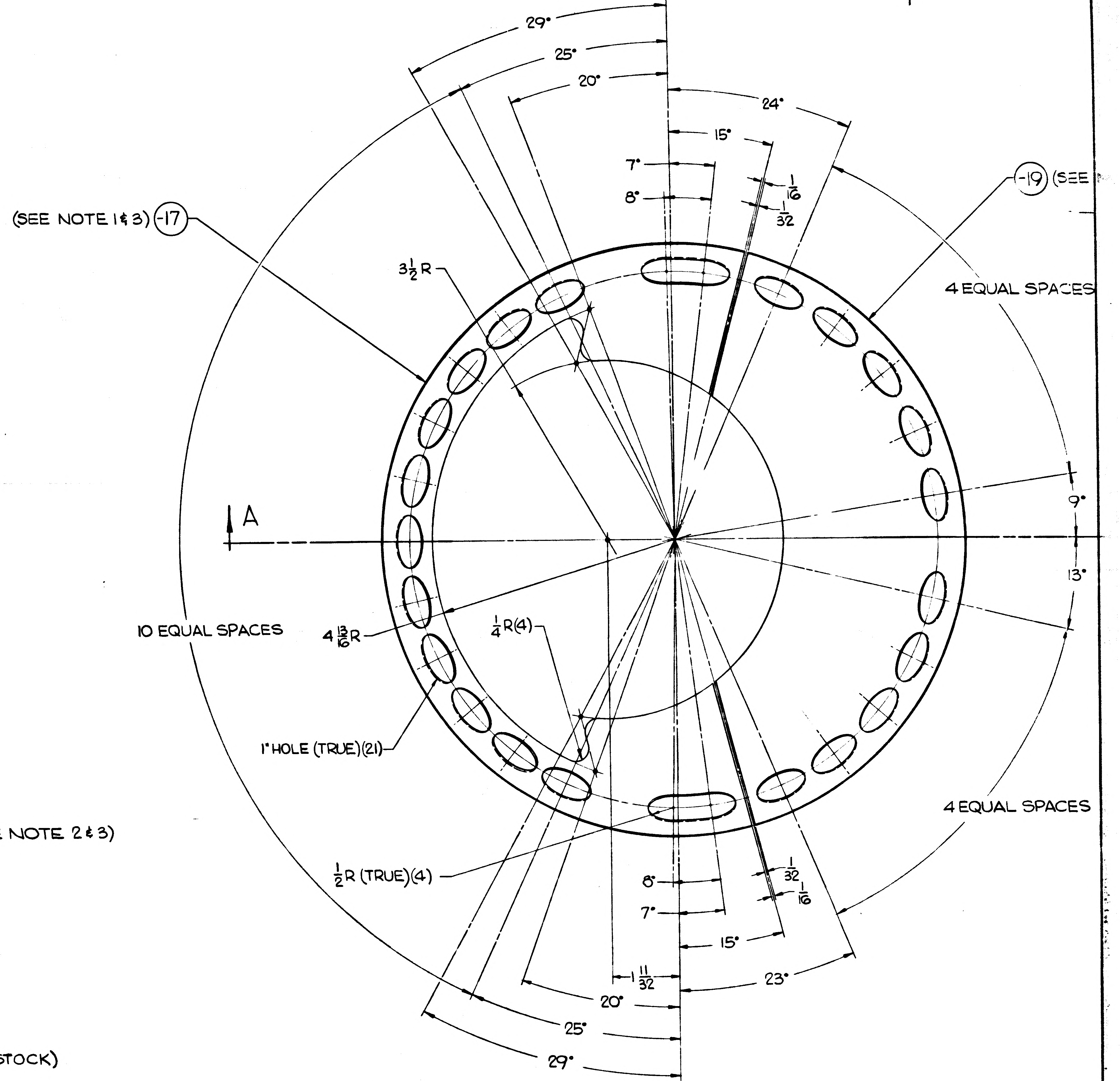
B
1/16 (REF)
1/32 (TYP)
B

B

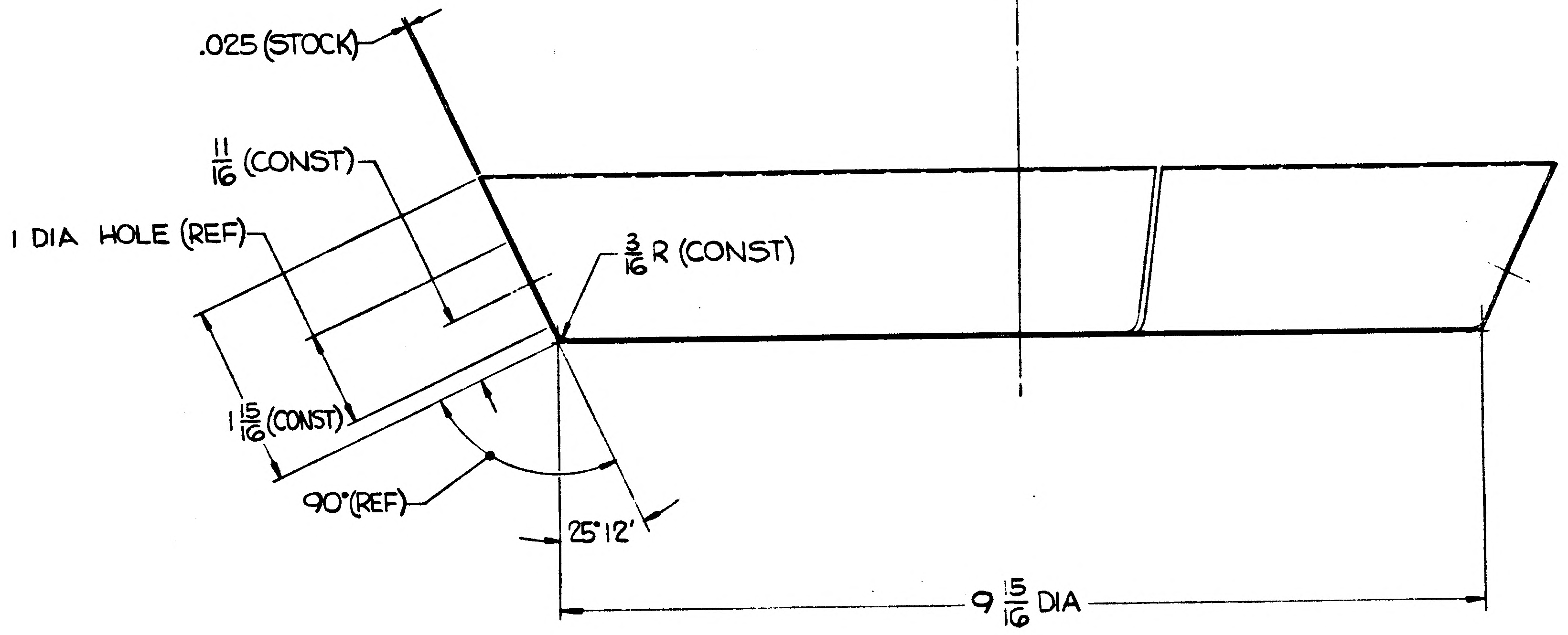


25°12'
1"
11 29/32 DIA
-15 (SEE NOTE 2 & 3)
7/32
.025 (STOCK)
7/32 R ±1/16 (TRUE)

SECTION B-B



29°
25°
20°
24°
15°
7°
8°
1/16
1/32
-19 (SEE
(SEE NOTE 1 & 3) -17
3 1/2 R
4 EQUAL SPACES
A
9°
13°
10 EQUAL SPACES
4 13/16 R
1/4 R (4)
1" HOLE (TRUE) (21)
4 EQUAL SPACES
1/2 R (TRUE) (4)
8°
7°
1/32
1/16
15°
1 11/32
20°
23°
25°
29°



.025 (STOCK)
11/16 (CONST)
1 DIA HOLE (REF)
3/16 R (CONST)
1 15/16 (CONST)
90° (REF)
25°12'
9 15/16 DIA

SECTION A-A

A

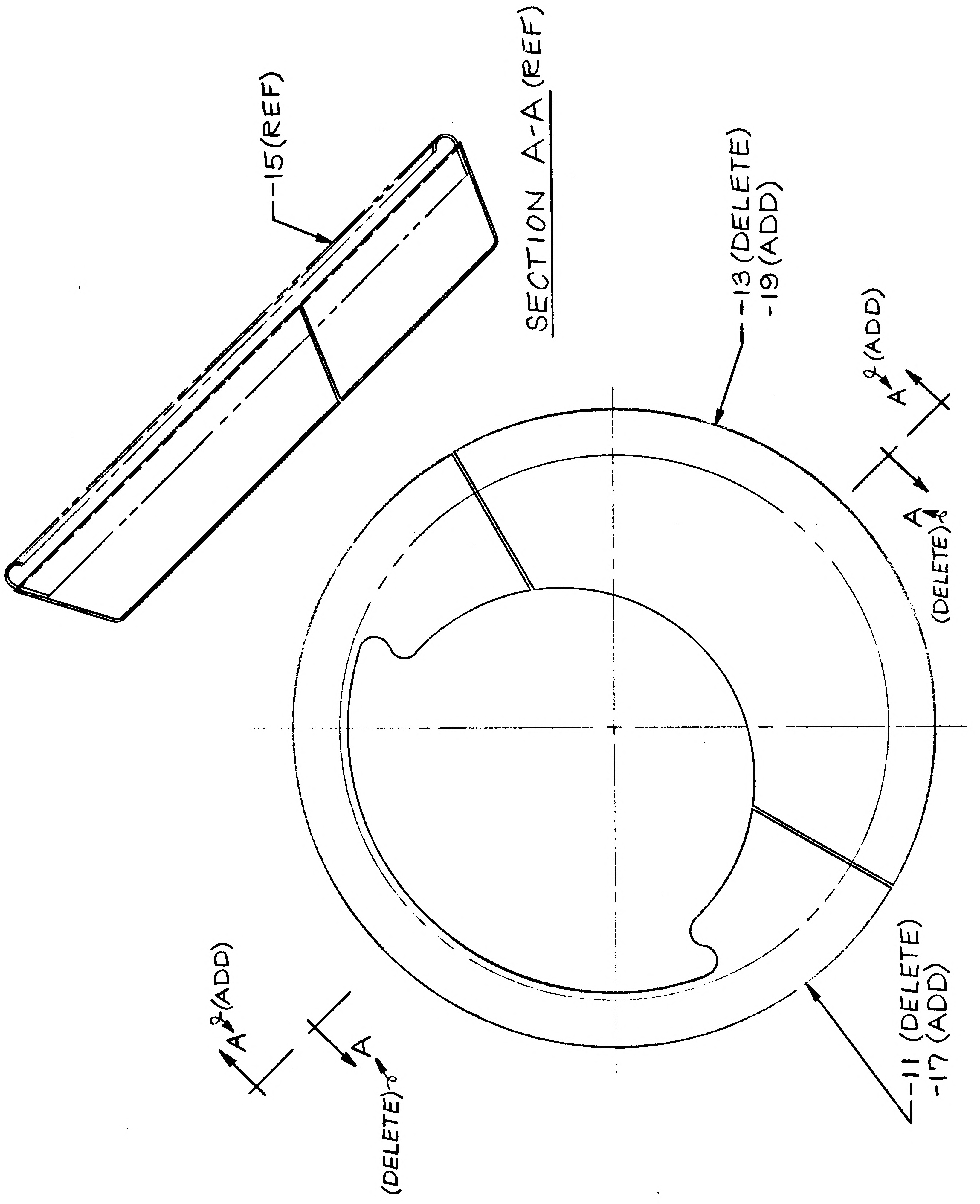
01/02 NAS 9-1100

LDW280-18198 SHEET 3.00

H.G.
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18198	EO NO.	A2
CONTROL INFO NO.	LM-2-3113		



IN FLD/DWG, B/M & MOD/BLK, DELETE -11 & -13 AND REPLACE WITH -17 & -19
IN FLD/DWG, REVERSE DIRECTION OF ARROWS FOR SECTION A-A
(-17 & -19 ARE IDENTICAL TO -11 & -13 EXCEPT FOR FLANGE DIRECTION)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: REVISION REQD DUE TO REDESIGN OF LOCALIZED AREA

DESCRIPTION OF EO: IN FLD, B/M & MOD/BLK, -17 & -19 WERE -11 & -13. IN FLD, REVERSED ARROW DIRECTION FOR SECT A-A.

GAEC EO RELEASE: C FR 92025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	-1-	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	12/20				12/10/66	12/10/66	12-12-66	12-13-66
	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CAP ~ DESCENT STAGE ~ UPPER OUTRIGGER PRESS VENT SUPPORT	LDW280-18198	A2

ISSUED BY LIAISON J. MALONEY 12/8/66 X3604 SECTION V.D.I GROUP NO. 335 PL 35

01 NAS 9-1100

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 10-63

DWG. NO. LEO 280		EO NO. 1088
CONTROL INFO NO. LDW280B4985		

IN M/B FOR THE FOLLOWING PARTS AND QUANTITIES NOTED
ADD TM-5/R (65) REQUIREMENTS.

* PART NO.	TITLE	QUANTITY	NEXT ASSY	CHANGE NO.
LDW280-28780-5	SEE DWG	3	LTM280-50644	B1 ✓
LDW280-28780-6	↑	3	LTM280-50644	
LDW280-18196-11		6	LDW280-28780	B1 ✓
LDW280-18196-13		6	↑	
LDW280-18196-14		6		
LDW280-18197-11		6		B2 ✓
LDW280-18197-15		6		
LDW280-18197-16		6		
LDW280-18197-17		6		
LDW280-18197-18		6		
LDW280-18197-19		6		
LDW280-18198-15		12		B1 ✓
LDW280-18198-17		6		
LDW280-18198-19		6		B1
LDW280-18199-11		6		B1
LDW280-18200-11		12	↓	
LDW280-18200-13		6		
LDW280-18200-15		6	LDW280-28780	
LDW280-53672-1		1	LTM280-50644	B10
LDW280-53672-2		1	↑	
LDW280-53672-3		2		
LDW280-53672-4		2		
LDW280-53672-7		3	↓	
LDW280-53672-8		3	LTM280-50644	
LDW280-18607-11		6	LDW280-53672	A6
LDW280-18607-13		6	↑	B6
LDW280-53584-51		3		
LDW280-53584-52		3		
LDW280-53584-53		3	↓	
LDW280-53584-54		3	LDW280-53672	
LDW280-53731-1	↓	6	LTM280-50644	B5
LDW280-53731-5	SEE DWG	6	LTM280-50644	

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 PKG 4 SHT 2 CCA 596 (5)		GAEC EO RELEASE ② IC
REASON FOR EO SHIELDING ON OUTRIGGER REQ'D		DESCRIPTION OF EO FOR * ADDED TM-5/R (65) EFFECTIVITY			11-1-68
MODEL LM	EFFECTIVITY — PROCURING ACTIVITY NO.	GAEC UNIT NO. TM-5/R (65)	SUB CONTR UNIT NO.	DRAWING CHANGE REQD ✓ REVISE DWG ☐ RECORD EO	DISPOSITION OF PARTS NOT REQD REWORK SCRAP
APPROVED BY	DATE 8/9/68	VDI	RELIAB. GROUP	GROUP LEADER GW PJT 8-3-68	STRESS GROUP NM 8-6-68
LIAISON ENGRG	PROJ ENGRG 8-15-68	AC			
PRIORITY C	DRAWING TITLE NOTED	DRAWING NO. LEO 280	EO NO. 1088		

CDR 081468
ISSUED BY MARZELLA 87222 GROUP VDI (335) PLT 25

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280
EO NO. 1365
CONTROL INFO NO. LDW280B 7424

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18195	C1	SEE DWG
-18196	B2	
-18197	B3	
-18198	B2	
-18199	B2	
-18200	B2	
-18201	B4	
-18202	B5	
-18206	B4	
LDW280-18207	B1	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 1 CCA 1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: 4/19/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY				PST	NJH			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/9/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1365

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

THIS IS AN ORIGINAL E.O.

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1523
CONTROL INFO NO. LDW280B 8107

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18190	SEE DWG	D2
195		C4
196		B3
197		B4
198		B3
199		B3
200		B3
201		B5
206		B5
LDW280-18223	SEE DWG	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 28 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE: 8-6-69; JK 8/9/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD EO ☐
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)
APPROVED BY: PJT
DATE: 7-29-69
VDI
SUPPORT
RELIAB. GROUP
GROUP LEADER: 7/29/69
STRESS GROUP: M 8-2-69
LIAISON ENGRG
PROJ ENGRG: 8/6/69
Bauman 8/8/69

PRIORITY: C.
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1523

8-22-69
ISSUED BY G. HANSMANN X 87222 (MH) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE I ENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1723
CONTROL INFO NO. LDW 280 B7977

IN M/B FOR ALL DWGS LISTED REMOVE EFF LM-10(40) THRU LM-14(44)

DRAWING NO.	DASH NO.-*	N/A WAS	CHANGE LETTER
LDW 280 -28780	-5 & -6	LDW 280 -54509	B4
-18196	-11, -13 & -14	-28780	B5
-18197	-11, -15, -16 -17, -18, -19	-28780	B6
-18198	-13	-28780	B5
-18199	-11	-28780	B5
LDW 280 -18200	-11, -13 & -15	LDW 280 -28780	B5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 84 (5)

REASON FOR EO: PARTS NO LONGER REQ'D

DESCRIPTION OF EO: FOR * REMOVED EFF LM-10(40) THRU LM-14(44)

(E) GAEC EO RELEASE: 10-9-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓
APPROVED BY / DATE: VDI — SUPPORT — RELIAB. GROUP — GROUP LEADER — STRESS GROUP — LIAISON ENGRG — PROJ ENGRG — ~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1723

CDR 010970
ISSUED BY R. HELMICKI ×86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1656
CONTROL INFO NO. LDW280B 8781

THIS LEO CANCELS CHANGES LISTED ON
LEO 280-1523 FOR THE FOLLOWING DRAWINGS

CANCELLED CHG. Nº	TITLE	DRAWING Nº	CANCELLING CHG. Nº
✓ E.O. B-3	SEE DWG.	LDW 280-18196	B4
✓ B-4		-18197	B5
✓ B-3		-18198	B4
B-3		-18199	B4
E.O. B-3	SEE DWG.	LDW 280-18200	B4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PK. 99 PG. 94

REASON FOR EO: VENT FORMER INSTL. NOT REQ'D FOR DROP OR DYNAMIC TESTS

DESCRIPTION OF EO: CANCELS (NOTED) CHG'S ON LEO 280-1523

GAEC EO RELEASE (5): 8-26-69; JK 8/29/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

APPROVED BY	PSH							
DATE	9-20-69			8/20/69	8/21/69		8/22/69	8/29/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1656

8/29/69
ISSUED BY M.H. LAMB/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1	1.00 1.10 2.00 3.00						EO A-1	E.O. A1 INITIAL DRAWING RELEASE PARTS MADE PER E.O	LTA-8 LM-1 THRU -15	NOT	REQD			12-16

CHG APPROVED	LTR	~~GROUP LDR~~	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIAB					
	A		12/8	12/8								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18199	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18199 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28780	LM-15(45)	8
		LM-14(44)	8
		LM-13(43)	8
		LM-12(42)	8
		LM-11(41)	8
		LM-10(40	8
		LM-9(39)	8
		LM-8(38)	8
		LM-7(37)	8
		LM-6(36)	8
		LM-5(35)	8
		LM-4(34)	8
		LM-3(33)	8
		LM-2(32)	8
		LM-1(31)	8
LM	LDW280-28780	LTA-8(18)	8
PART NO. LDW280-18199-11		GAEC SCH NO. 50-2	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED — 11

GRUMMAN REL INFO A

PRIM NO. VE(001) 207 MP-14 A-12-14-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	P. Como 11-21-66	RELIAB	
LAYOUT BY			
CHECKED BY	C. GLASER 11-22-66		
~~GR. LDR~~			
VEH DES INT			
STRUCT	FS 12/8	PROJ ENGR	12-8
STRUCT		REL GROUP	J. Paglovo 12/8/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN
DESCENT STAGE, UPPER OUTRIGGER
PRESSURE VENT SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18199 | A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18199-11	E	SKIN	ALALLOYSHEET	QQ-A-250/4	2024-T3	.020 X 4 X 24	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

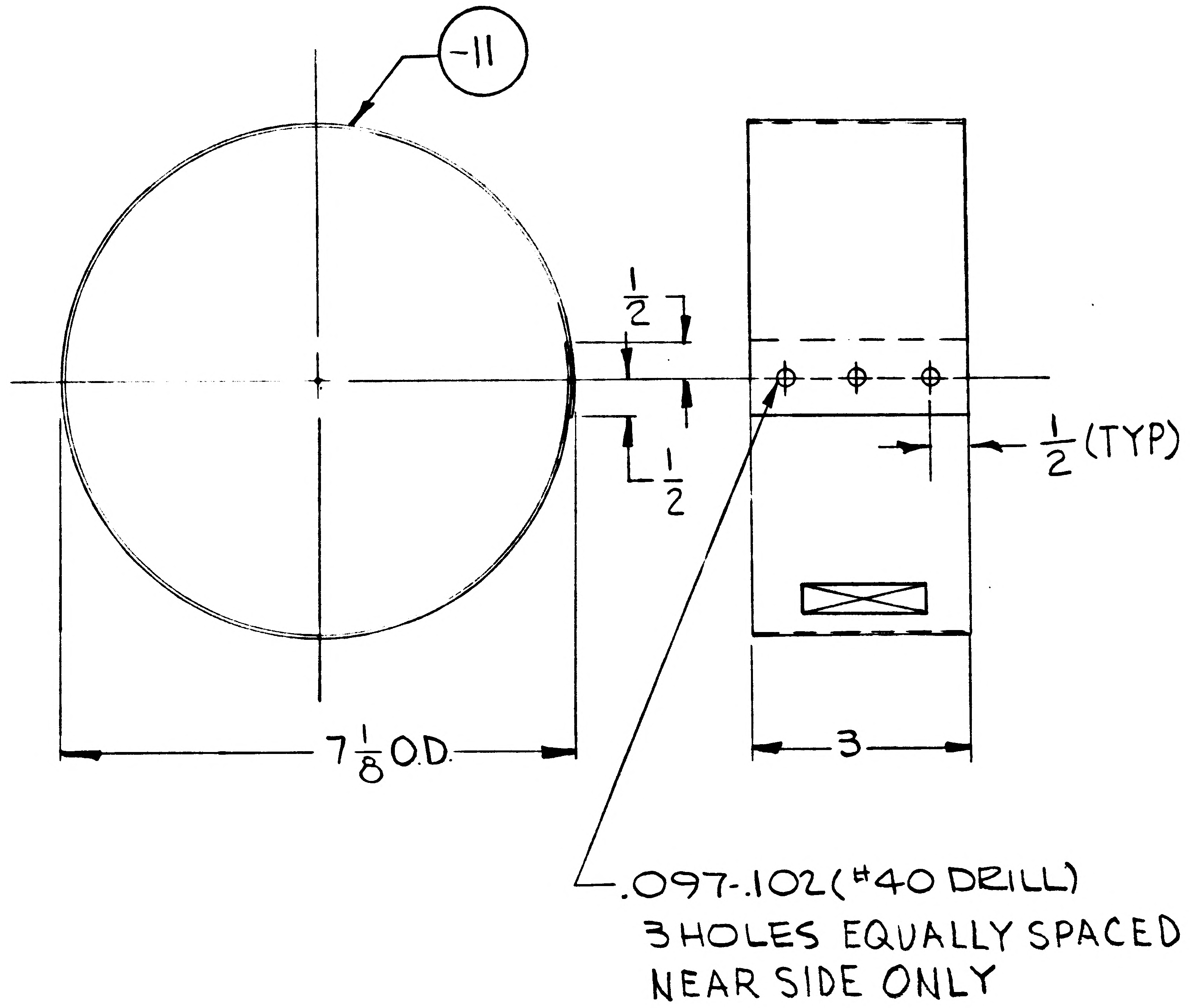
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18199	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓	FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.		EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.		ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.			
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING		REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
		SYMBOL √ DENOTES SURFACE TO BE MACHINED	
		TOLERANCE ON FLANGES IS ± 1/32	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.		LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10			
200√ FOR ALL DRILLED HOLES			
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS			

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18199	A
SCALE 1/2		SHEET 3.00	

ENG 73.11 12-64

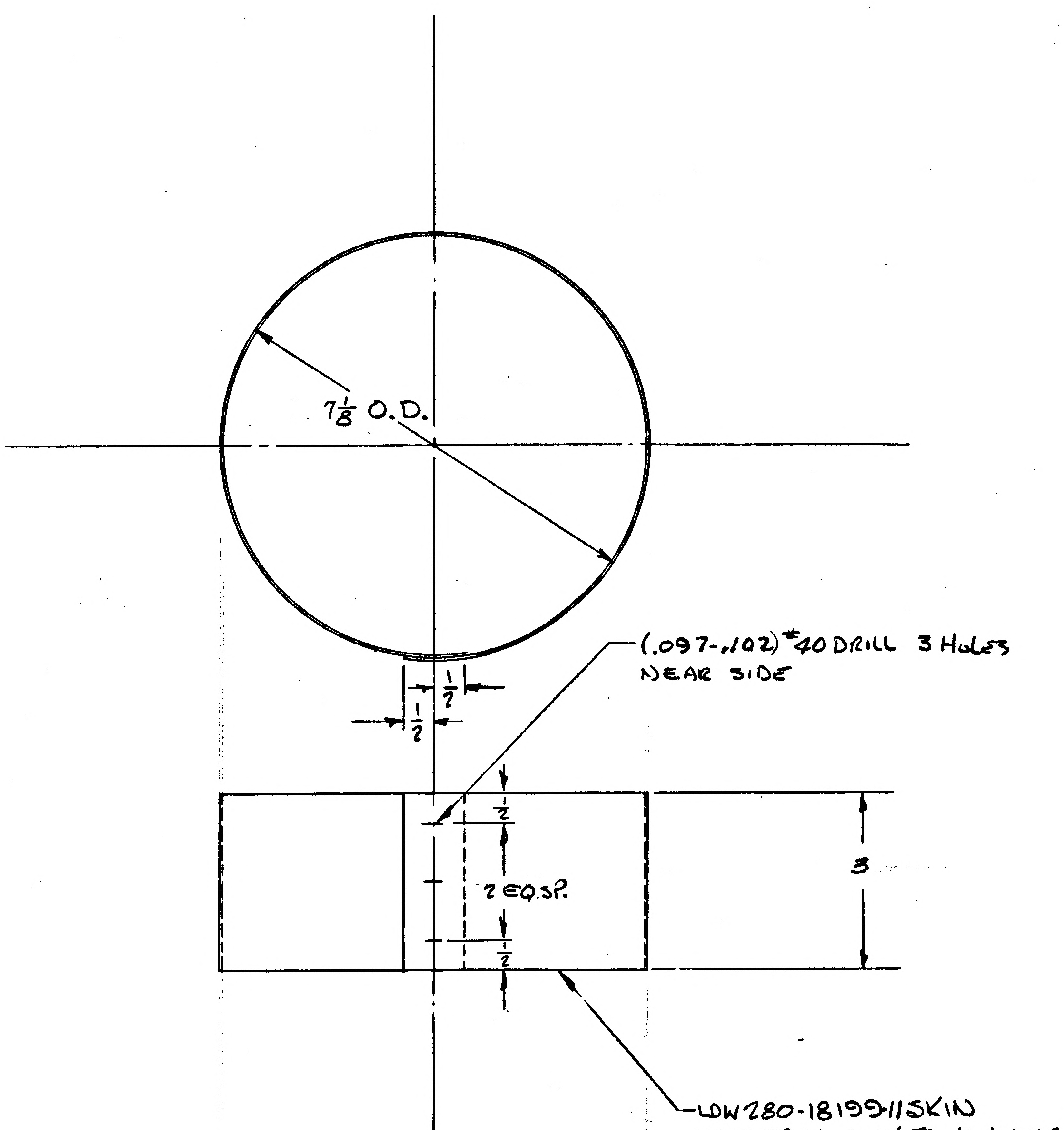
01 NAS 9-1100

ENG 32.2 REV 3-66

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18199 | EO NO. A1
CONTROL INFO NO. LDW280A-3201



LDW280-18199-11SKIN
MAKE FROM 2024-T3 AL ALLOY
QQ-A-250/4 SHEET BARE
.020 x 3 1/4 x 23 3/4
N/A LDW280-28780 LTA8(18),
LM1(31) THRU LM15(45)
8 REQ'D/MOD. I&T = E

FINISH: ANODIZE (88) LSP14-9030.
TOL: FRACTIONAL ± $\frac{1}{32}$ ANGLE ± ½° DECIMAL ±.020

CONTRACT #NAS 9-1100
LINE ITEM #1

N/A LDW280-28780 CONTROL #LDW280A3428

* DWG NOT MADE

CDR = 11/18/66

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG									2
REASON FOR EO					DESCRIPTION OF EO								GAEC EO RELEASE C
TO PROVIDE PROPER VENTING. (THERMO REQUIREMENT					E.O. A1 INITIAL DWG. RELEASE PARTS MADE PER E.O.								FR 11/17/66 50-1
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					RME
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	*		NOT	REQ'D	DATE	11/15/66	11/14		11/15/66	11/15/66	11-15-66	11/15/66
LM		LTA8(18) LM1(31) THRU		REVISE DWG	RECORD EO	REWORK	SCRAP	5	VD1	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
		LM15(45)		PRIORITY C		DRAWING TITLE SKIN D/S UPPER OUTER PRESS. VENT SUPT					DRAWING NO. LDW280-18199		EO NO. A1

ISSUED BY P. WEISSLITZ / J. STRAKOSCH x1153 SECTION VD1 GROUP NO. 335 PL 35

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 10-63

DWG. NO. LEO 280	EO NO. 1088
CONTROL INFO NO. LDW280 B4985	

IN M/B FOR THE FOLLOWING PARTS AND QUANTITIES NOTED ADD TM-5/R (65) REQUIREMENTS.

* PART NO.	TITLE	QUANTITY	NEXT ASSY	CHANGE NO.
LDW280-28780-5	SEE DWG	3	LTM280-50644	B1
LDW280-28780-6		3	LTM280-50644	
LDW280-18196-11		6	LDW280-28780	B1
LDW280-18196-13		6		
LDW280-18196-14		6		
LDW280-18197-11		6		B2
LDW280-18197-15		6		
LDW280-18197-16		6		
LDW280-18197-17		6		
LDW280-18197-18		6		
LDW280-18197-19		6		
LDW280-18198-15		12		B1
LDW280-18198-17		6		
LDW280-18198-19		6		
LDW280-18199-11		6		B1
LDW280-18200-11		12		B1
LDW280-18200-13		6		
LDW280-18200-15		6	LDW280-28780	
LDW280-53672-1		1	LTM280-50644	B10
LDW280-53672-2		1		
LDW280-53672-3		2		
LDW280-53672-4		2		
LDW280-53672-7		3		
LDW280-53672-8		3	LTM280-50644	
LDW280-18607-11		6	LDW280-53672	A6
LDW280-18607-13		6		
LDW280-53584-51		3		B6
LDW280-53584-52		3		
LDW280-53584-53		3		
LDW280-53584-54		3	LDW280-53672	
LDW280-53731-1		6	LTM280-50644	B5
LDW280-53731-5	SEE DWG	6	LTM280-50644	

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 PKG 4 SHT 2	CCA 586	(5)
REASON FOR EO: SHIELDING ON OUTRIGGER REQ'D		DESCRIPTION OF EO: FOR * ADDED TM-5/R (65) EFFECTIVITY			GAEC EO RELEASE: IC
MODEL: LM	PROCURING ACTIVITY NO.	GAEC UNIT NO.: TM-5/R (65)	SUB CONTR UNIT NO.		
DRAWING CHANGE REQD: ✓ REVISE DWG	RECORD EO	DISPOSITION OF PARTS: NOT REQD	APPROVED BY	DATE: 8/6/68	VD1
RELIAB. GROUP	GROUP LEADER: 8-3-68	STRESS GROUP: NM 8-6-68	LIAISON ENGRG	PROJ ENGRG: AC 8-15-68	
PRIORITY: C	DRAWING TITLE: NOTED		DRAWING NO.: LEO 280	EO NO.: 1088	

CDR 081468

ISSUED BY: MARZELLA 87222 GROUP: VD1 (335) PLT 25

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1365
CONTROL INFO NO. LDW280B 7424

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280-18195	C1	SEE DWG
✓ -18196	B2	
✓ -18197	B3	
✓ -18198	B2	
✓ -18199	B2	
-18200	B2	
-18201	B4	
-18202	B5	
-18206	B4	
LDW280-18207	B1	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 1 CCA 1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM
— *

GAEC EO RELEASE: SK 4/11/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JWG			RSF	NJH		JaP	Good
DATE	4/7/69			4-2-69	4/8/69		4/9/69	4/9/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1365

052869
ISSUED BY MEVORAH H /THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1523
CONTROL INFO NO. LDW 280B 8107

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted]
ADD LTA-11 (~~[redacted]~~ 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW 280-18190	SEE DWG	D2
195		C4
196		B3
197		B4
198		B3
199		B3
200		B3
201		B5
206		B5
LDW280-18223	SEE DWG	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 28 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE: 8-6-69; JK 8/9/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

APPROVED BY					N		Bauman	
DATE	7-29-69			7/29/69	8-2-69		8/2/69	8/8/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C.
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1523

8-22-69
ISSUED BY G. HANSMANN X 87222 SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1723
CONTROL INFO NO. LDW 280 B7977

IN M/B FOR ALL DWGS LISTED REMOVE EFF LM-10(40) THRU LM-14(44)

DRAWING NO.	DASH NO.*	N/A WAS	CHANGE LETTER
LDW 280 -28780	-5 & -6	LDW 280 -54509	B4
-18196	-11, -13 & -14	-28780	B5
-18197	-11, -15, -16 -17, -18, -19	-28780	B6
-18198	-13	-28780	B5
-18199	-11	-28780	B5
LDW 280 -18200	-11, -13 & -15	LDW 280 -28780	B5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 84 (5)

REASON FOR EO: PARTS NO LONGER REQ'D

DESCRIPTION OF EO: FOR * REMOVED EFF LM-10(40) THRU LM-14(44)

(E) GAEC EO RELEASE 10-9-69 10/10/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: REWORK | ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	FDR							
DATE	10/6/69			10/6/69	10/8/69		10/6/69	10/10/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1723

CDR 010970
ISSUED BY R. HELMICKI x86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1656
CONTROL INFO NO. LDW280B 8781

THIS LEO CANCELS CHANGES LISTED ON LEO 280-1523 FOR THE FOLLOWING DRAWINGS

CANCELLED CHG. Nº		TITLE	DRAWING Nº	CANCELLING CHG. Nº
✓ E.O.	B-3	SEE DWG.	LDW 280-18196	B4
✓	B-4		-18197	B5
✓	B-3		-18198	B4
✓	B-3		-18199	B4
E.O.	B-3	SEE DWG.	LDW 280-18200	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PK. 99 PG. 94 (5)

REASON FOR EO: VENT FORMER INSTL. NOT REQ'D FOR DROP OR DYNAMIC TESTS

DESCRIPTION OF EO: CANCELS (NOTED) CHG'S ON LEO 280-1523

GAEC EO RELEASE: 8-26-69
8/29/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	PST				M/H		
DATE	8-20-69			8/20/69	8/21/69		8/22/69 8/29/69
	VDI						

PRIORITY
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1656

8/29/69
ISSUED BY M.H. LAMB/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18200-15	E	SHIM	AL ALLOY SH	QQ-A-250/4	2024	190X1X2	T3/T42	88	
		LDW280-18200-13	E	STRAP	AL ALLOY SH	QQ-A-250/4	2024	.040X1X14	T3/T42	88	
		LDW280-18200-11	E	SPLICE PLATE	AL ALLOY SH	QQ-A-250/4	2024-T3	.020X3X3	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T42	HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18200	A

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~QC~~ APPD
A	1	1.00, 1.10, 2.00 & 3.00						EO A1	EOA1 INITIAL DRAWING RELEASE. PARTS MADE PER E.O. GB	LTA-8 LM-1 THRU LM-15	NOT	REQD	CIOFFI 11-30-66 HTO 12-8-66		12-8-66
	2	1.10 & 3.00						EO A2	REF EO A1; 1 5/16 DIM ON -11 WAS 1 5/8.						

CHG APPROVED

LTR	~~GROUP LDR~~	VEH. DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
A		12/8	12/8			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18200

A

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18200 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28780	LM-15 (45)	8 EA
		LM-14 (44)	
		LM-13 (43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5 (35)	
		LM-4 (34)	
		LM-3 (33)	
		LM-2 (32)	
		LM-1 (31)	
LM	LDW280-28780	LTA-8 (18)	8 EA
PART NO. LDW280-18200-13&-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28780	LM-15 (45)	16
		LM-14 (44)	
		LM-13 (43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5 (35)	
		LM-4 (34)	
		LM-3 (33)	
		LM-2 (32)	
		LM-1 (31)	
LM	LDW280-28780	LTA-8 (18)	16
PART NO. LDW280-18200-11		GAEC SCH NO. 502	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL^C INFO Δ		
LAST DASH NO. USED	-15	PRIM NO.	208	FR/01 MP14A 12/11/6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	N. CIOFFI ~ 11-30-66	RELIABILITY	
LAYOUT BY	J. ROGERS ~ 11-17-66		
CHECKED BY	12-2-66		
~~GR. LEADER~~			
VEH. DES. INT.	12/8		
STRUCTURES	12/8	PROJ ENGR	H. Wright 12-8-66
STRUCTURES		REL GROUP	J. Pagliaro 12/8/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPLICE & STRAP-
DECENT STAGE UPPER OUTRIGGER
PRESS VENT SUPPORT

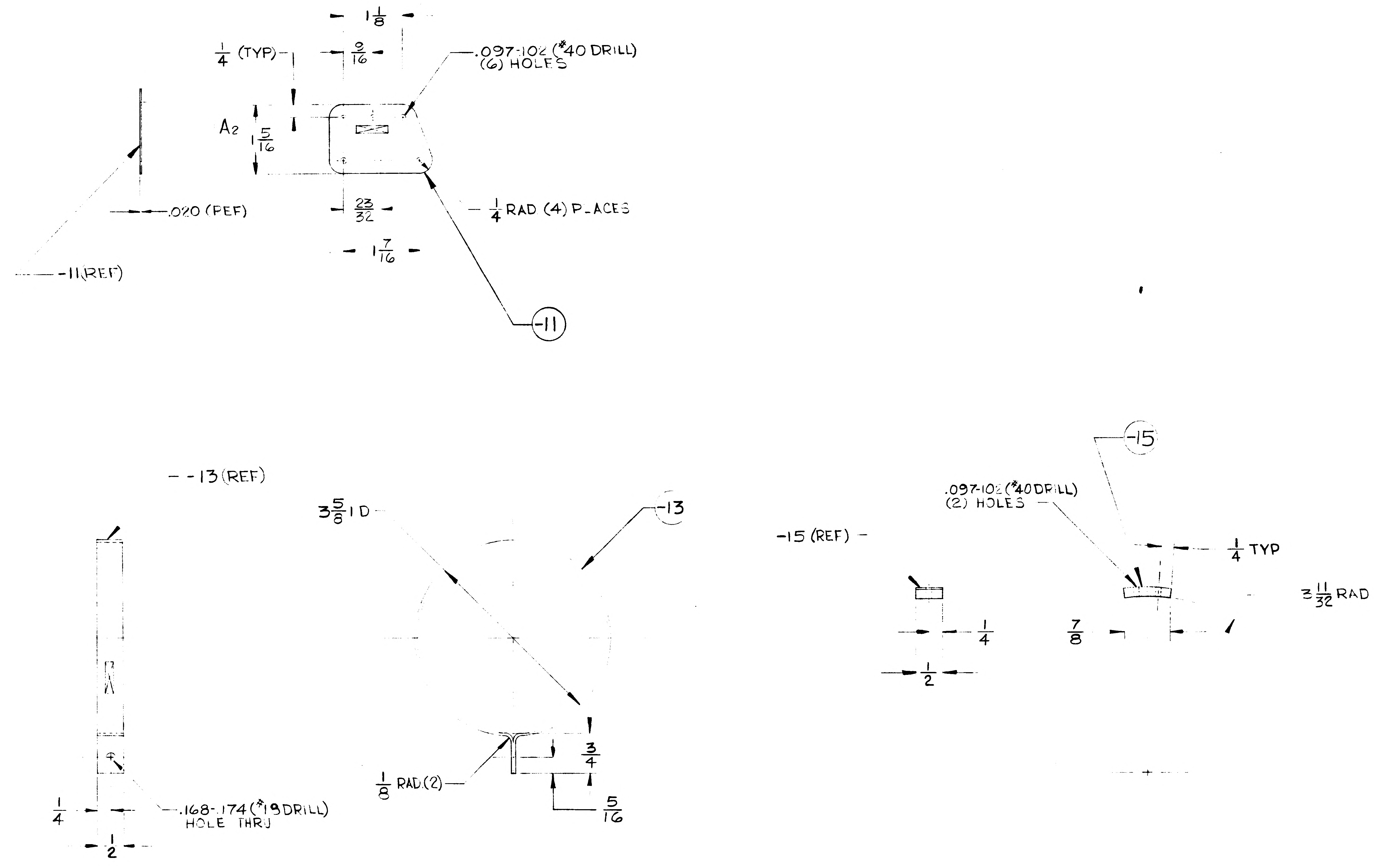
SIZE	CODE IDENT NO.		
B	26512	LDW280-18200	A
SCALE	NONE	SHEET 1 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

LDW280-18200 A



1 1/8
1/4 (TYP)
9/16
.097-.102 (#40 DRILL) (6) HOLES
A2
1 5/16
23/32
1/4 RAD (4) PLACES
1 7/16
.020 (REF)
-11 (REF)
-11
-13 (REF)
3 5/8 I D
-13
1/8 RAD (2)
3/4
5/16
.168-.174 (#19 DRILL) HOLE THRU
1/4
1/2
-15 (REF)
.097-.102 (#40 DRILL) (2) HOLES
-15
1/4 TYP
3 11/32 RAD
7/8
1/4
1/2

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

P... PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
$\sqrt[125]{}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\sqrt[200]{}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL $\sqrt{}$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-18200 A

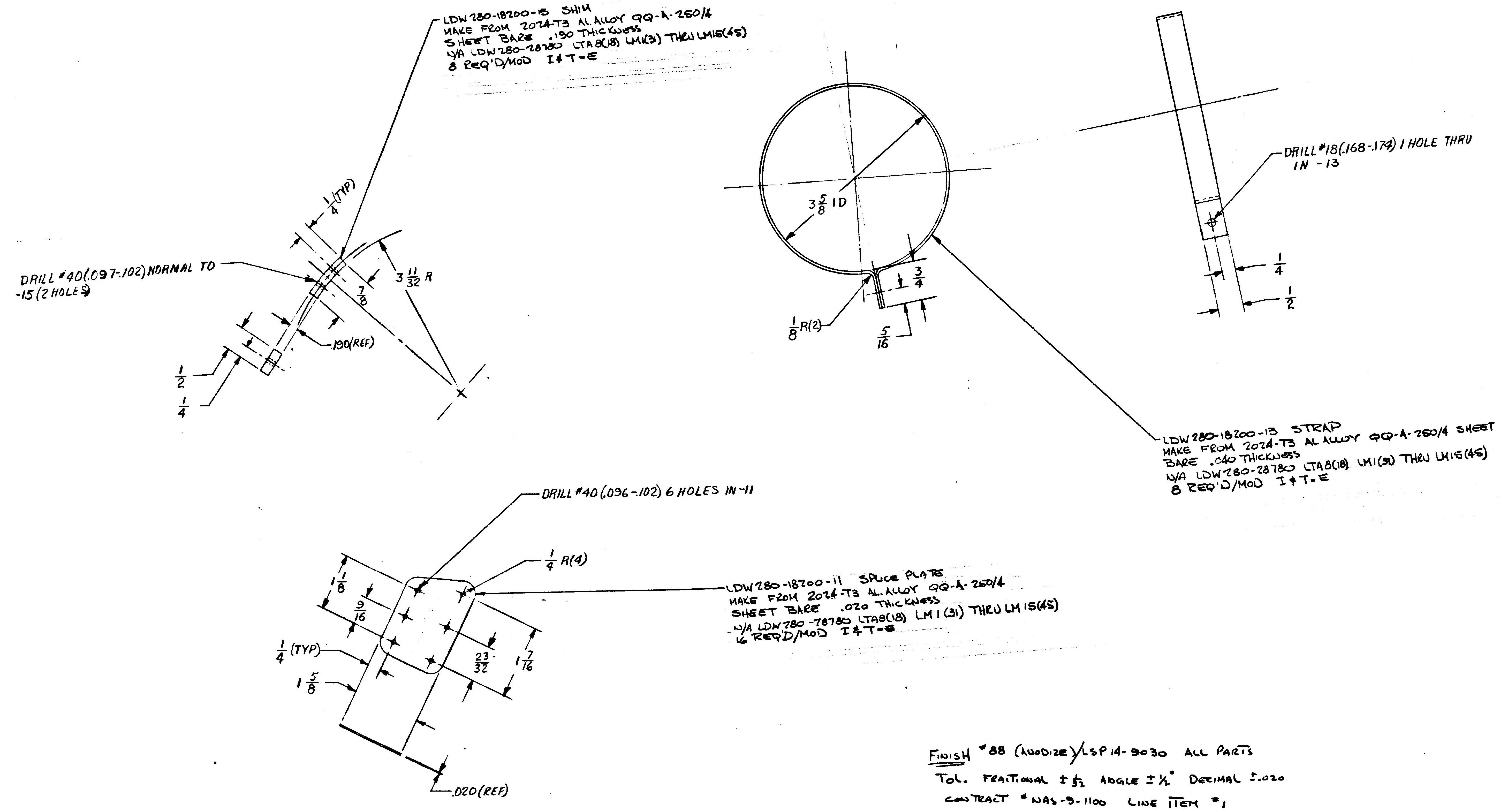
GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
D	26512	LDW280-18200	A

MODEL OR END ITEM
SCALE
SHEET

ENG 73-3 6-64

01 NAS 9-1100


LDW280-18200-15 SHIM
MAKE FROM 2024-T3 AL. ALLOY QQ-A-250/4
SHEET BARE .190 THICKNESS
N/A LDW280-28780 LTA8(18) LM1(31) THRU LM15(45)
8 REQ'D/MOD I&T-E
DRILL #40(.097-.102) NORMAL TO -15 (2 HOLES)
1/4 (TYP)
7/8
3 11/32 R
.190(REF)
1/2
1/4
3 5/8 ID
3/4
1/8 R(2)
5/16
DRILL #18(.168-.174) 1 HOLE THRU IN -13
1/4
1/2
LDW280-18200-13 STRAP
MAKE FROM 2024-T3 AL ALLOY QQ-A-250/4 SHEET
BARE .040 THICKNESS
N/A LDW280-28780 LTA8(18) LM1(31) THRU LM15(45)
8 REQ'D/MOD I&T-E
DRILL #40 (.096-.102) 6 HOLES IN -11
1/4 R(4)
LDW280-18200-11 SPLICE PLATE
MAKE FROM 2024-T3 AL. ALLOY QQ-A-250/4
SHEET BARE .020 THICKNESS
N/A LDW280-28780 LTA8(18) LM1(31) THRU LM15(45)
16 REQ'D/MOD I&T-E
1 1/8
9/16
1/4 (TYP)
1 5/8
23/32
1 7/16
.020(REF)

FINISH #88 (ANODIZE)/LSP 14-9030 ALL PARTS
TOL. FRACTIONAL ± 1/32 ANGLE ± 1/2° DECIMAL ±.020
CONTRACT #NAS-9-1100 LINE ITEM #1
DOCUMENTATION TYPE II
PRIMARY 208

N/A LDW 280-28780 CONTROL #LDW280A3428

* DRAWING NOT MADE

(2)

DETAIL SPEC REQD		CLASS II ENGRG CHG ✓	CLASS I ENGRG CHG
CONTROL INFO NO.	LDW280A3427		
REASON FOR EO	TO PROVIDE PROPER VENTING (THERMO REQUIREMENT)	DESCRIPTION OF EO	E.O. A1, INITIAL DRAWING RELEASE PARTS MADE PER E.O.
GRUMMAN EO RELEASE	11/18/66		

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1(31)	
LM		THRU	
LM		LM-15(45)	

DRAWING REVISION REQD		DISPOSITION OF PARTS									
REVISE DWG	RECORD EO	NOT REWORK	REQ'D SCRAP	5	VDI	SUPPORT THERMO	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR
*				11/17/66		11/17/66		11/17/66	11/17/66		11-17-66

PRIORITY	DRAWING TITLE	ENGINEERING ORDER DRAWING NO.	EO NO.
C	SPLICE & STRAP ~ D/S UPPER OUTRGR PRESS VENT SUPT	LDW280-18200	A1

J. ROGERS ISSUED BY P. WEISSLITZ	J. STRAKOSCH X1392 SECTION VEH. DES. INT GROUP NO. 335 PL. 35	CODE IDENT NO. 26512	GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE, L. I., N. Y.

ENG 32.3 REV 3-66

CDR 11/18/66

01 NAS 9-1100

ENG 22.2 10-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1088
CONTROL INFO NO. LDW280 B4985

IN M/B FOR THE FOLLOWING PARTS AND QUANTITIES NOTED ADD TM-5/R (65) REQUIREMENTS.

* PART NO.	TITLE	QUANTITY	NEXT ASSY	CHANGE NO.
LDW280-28780-5	SEE DWG	3	LTM280-50644	B1 ✓
LDW280-28780-6		3	LTM280-50644	
LDW280-18196-11		6	LDW280-28780	B1 ✓
LDW280-18196-13		6		
LDW280-18196-14		6		
LDW280-18197-11		6		B2 ✓
LDW280-18197-15		6		
LDW280-18197-16		6		
LDW280-18197-17		6		
LDW280-18197-18		6		
LDW280-18197-19		6		
LDW280-18198-15		12		B1 ✓
LDW280-18198-17		6		
LDW280-18198-19		6		B1 ✓
LDW280-18199-11		6		B1 ✓
LDW280-18200-11		12		
LDW280-18200-13		6		
LDW280-18200-15		6	LDW280-28780	
LDW280-53672-1		1	LTM280-50644	B10
LDW280-53672-2		1		
LDW280-53672-3		2		
LDW280-53672-4		2		
LDW280-53672-7		3		
LDW280-53672-8		3	LTM280-50644	
LDW280-18607-11		6	LDW280-53672	A6
LDW280-18607-13		6		B6
LDW280-53584-51		3		
LDW280-53584-52		3		
LDW280-53584-53		3		
LDW280-53584-54		3	LDW280-53672	
LDW280-53731-1		6	LTM280-50644	B5
LDW280-53731-5	SEE DWG	6	LTM280-50644	

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 PKG 4 SHT 2	CCA 586	(5)
REASON FOR EO: SHIELDING ON OUTRIGGER REQ'D	DESCRIPTION OF EO: FOR * ADDED TM-5/R (65) EFFECTIVITY				GAEC EO RELEASE: IC
MODEL: LM	EFFECTIVITY — PROCURING ACTIVITY NO.:	GAEC UNIT NO.: TM-5/R (65)	SUB CONTR UNIT NO.:		
DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO	DISPOSITION OF PARTS: NOT REQD (REWORK SCRAP)	APPROVED BY / DATE: 8/6/68 VD1	RELIAB. GROUP:	GROUP LEADER: 8-3-68	STRESS GROUP: NM 8-6-68
LIAISON ENGRG:	PROJ ENGRG: AC 8-15-68				
PRIORITY: C	DRAWING TITLE: NOTED	DRAWING NO.: LEO 280	EO NO.: 1088		

CDR 081468
ISSUED BY MARZELLA 87222 GROUP VD1 (335) PLT 25

01 NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENG' ᴵᴺEERING ORDER

DWG. NO. LEO 280 | EO NO. 1365
CONTROL INFO NO. LDW280B 7424

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. ✱

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280-18195	C1	SEE DWG
✓ -18196	B2	↑
✓ -18197	B3	
✓ -18198	B2	
✓ -18199	B2	
✓ -18200	B2	
-18201	B4	
-18202	B5	
-18206	B4	↓
LDW280-18207	B1	SEE DWG

✱ APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —✱

GAEC EO RELEASE: SK 4/19/9

MODEL: LM

EFFECTIVITY — PROCURING ACTIVITY NO.: | GAEC UNIT NO.: LM-15(45) | SUB CONTR UNIT NO.:

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY				PBF	NJR			
DATE	4/9/69			4-2-69	4/8/69		4/9/69	4/9/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO.: 1365

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

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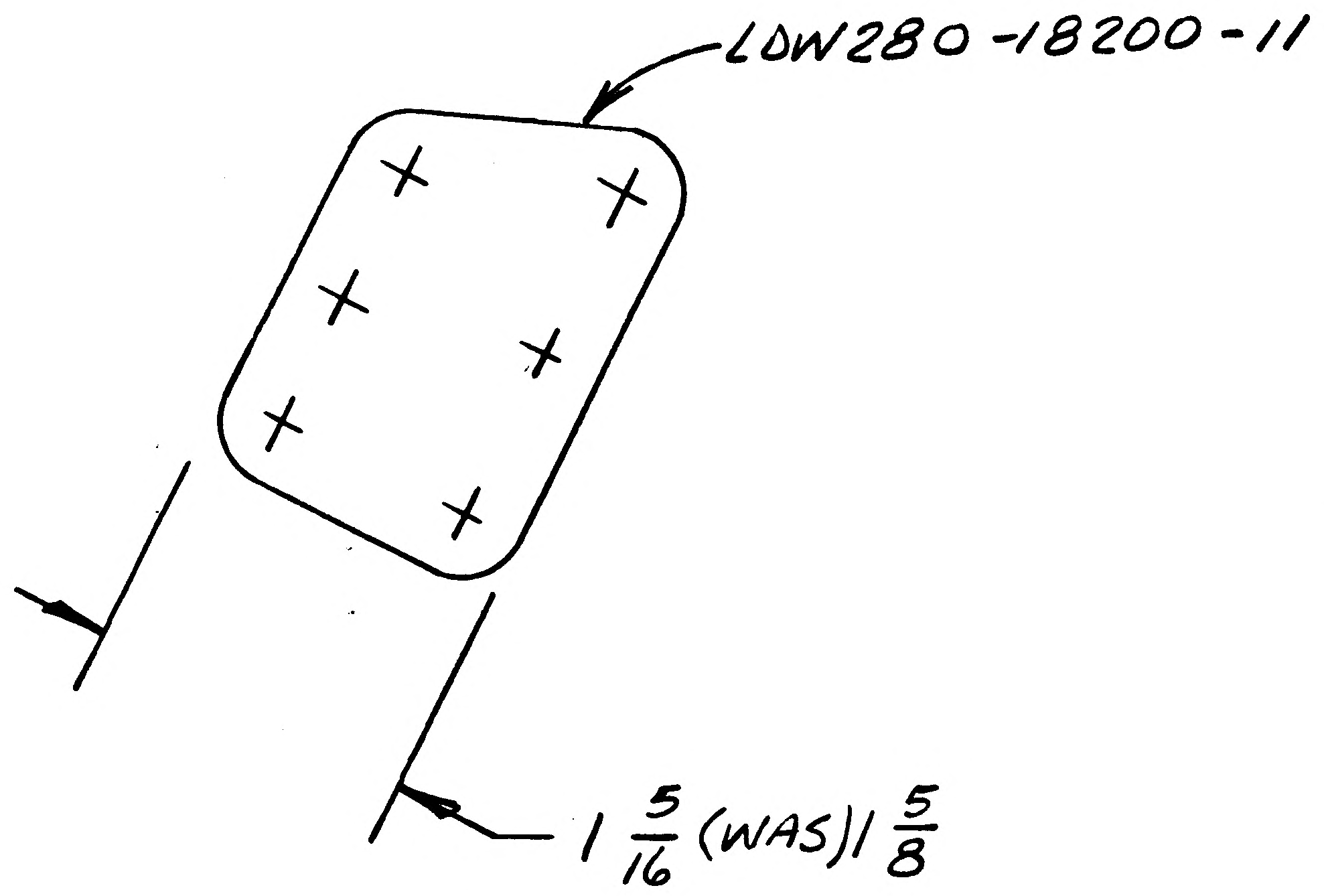
NAS 9-1100

H.G.
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18200
EO NO. A2
CONTROL INFO NO. LM-2-3061

THIS IS A REVISION OF EO A1



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		✓

REASON FOR EO: INCORRECT DIMENSION ON -11 (REF EO A1)

DESCRIPTION OF EO: REF EO A1
1 5/16 DIM ON -11 WAS 1 5/8

GAEC EO RELEASE: LE 02005

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-8 (18)		
LM	LM 1 (31) THRU LM 15 (45)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY	JRS				CAW	CAW		
DATE	12/14/66				11/29/66	11/29/66	12-1-66	11/30/66
1	VD1	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C_2	SPLICE & STRAP O/S UPPER OUTRGR PRESS VENT SUPT	LDW280-18200	A2

ISSUED BY LIAISON G.MARTELL x3604 11-29-66 SECTION VD I GROUP NO. 335 PL 35

01 NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280		EO NO. 1523
CONTROL INFO NO. LDW 280B 8107		

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18190 ✓	SEE DWG	D2
✓ 195 ✓		C4
✓ 196 ✓		B3
197 ✓		B4
198 ✓		B3
199 ✓		B3
200 ✓		B3
201		B5
206		B5
LDW280-18223	SEE DWG	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 28 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: LWB 8-6-69; JK 8/9/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	PST				M		Bauman
DATE	7-29-69			7/29/69	8-2-69		8/2/69 8/8/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C.
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1523

8-22-69
ISSUED BY G. HANSMANN X 87222 (M4) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 R. .5

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1656
CONTROL INFO NO. LDW280B 8781

THIS LEO CANCELS CHANGES LISTED ON LEO 280-1523 FOR THE FOLLOWING DRAWINGS

CANCELLED CHG. №	TITLE	DRAWING №	CANCELLING CHG. №
✓ E.O. B-3	SEE DWG.	LDW 280-18196	B4
✓ B-4		-18197	B5
✓ B-3		-18198	B4
✓ B-3		-18199	B4
✓ E.O. B-3	SEE DWG.	LDW 280-18200	B4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PK.99 PG. 94

REASON FOR EO: VENT FORMER INSTL. NOT REQ'D FOR DROP OR DYNAMIC TESTS

DESCRIPTION OF EO: CANCELS (NOTED) CHG'S ON LEO 280-1523

GAEC EO RELEASE (5) JR 8-26-69 VK 8/29/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PST				WJH			
DATE	9-20-69			8/20/69	8/12/69		8/22/69	8/29/69
	VDI							

PRIORITY

DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1656

8/29/69
ISSUED BY M.H.LAMB/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1723
CONTROL INFO NO. LDW 280 B7977

IN M/B FOR ALL DWGS LISTED REMOVE EFF LM-10(40) THRU LM-14(44)

DRAWING NO.		DASH NO. *	N/A WAS		CHANGE LETTER
LDW 280	-28780	-5 & -6	LDW 280	-54509	B4
	-18196	-11, -13 & -14		-28780	B5
	-18197	-11, -15, -16 -17, -18, -19		-28780	B6
	-18198	-13		-28780	B5
	-18199	-11		-28780	B5
LDW 280	-18200	-11, -13 & -15	LDW 280	-28780	B5

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3994 | PKG 84 | (5)

REASON FOR EO: PARTS NO LONGER REQ'D

DESCRIPTION OF EO: FOR * REMOVED EFF LM-10(40) THRU LM-14(44)

GAEC EO RELEASE: (E) 10-9-69 10/10/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	FDR							
DATE	10/8/69			10/6/69	10/8/69		10/6/69	10/10/69
	VDI							

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO. LEO 280 | EO NO. 1723

CDR 010970
ISSUED BY R. HELMICKI x86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1							E.O. A1	E.O. A1 INITIAL DWG RELEASE PART MADE PER E.O.	LM-1 THRU LM-15	NOT	REQD	L. BITTNER EG 2-3-67	RMC(UR) 2-24-67	2-24-67
	2	3.00						LEO280-406	ADDED NOTE #2						
	3	2.00, 3.00	7C					E.O. A3	REWORKED -11 ADDED FOLLOWING DIM 4 7/8, 1/2 R & 1/4 R, 13 5/8 WAS 14 11/16		✓				
	4	3.00	5A						REF E.O. A3 DRILL # 50 (40 HOLES) WAS (42 HOLES)						

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
	A		2-24-67	2/24/67	2/24		

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18201	A
SCALE	NONE		SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51642	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
LM	LDW280-51642	LM-11(41)	2

PART NO. LDW280-18201-19 CONT.

LDW280-18201 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51642	LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
		LM-4(34)	2
		LM-3(33)	2
		LM-2(32)	2
LM	LDW280-51642	LM-1(31)	2

PART NO. LDW280-18201-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28652	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	1
		LM-2(32)	1
LM	LDW280-28652	LM-1(31)	1

PART NO. LDW280-18201-13 GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51642	LM-15(45)	8 EA
		LM-14(44)	8 EA
		LM-13(43)	8 EA
		LM-12(42)	8 EA
		LM-11(41)	8 EA
		LM-10(40)	8 EA
		LM-9(39)	8 EA
		LM-8(38)	8 EA
		LM-7(37)	8 EA
		LM-6(36)	8 EA
		LM-5(35)	8 EA
		LM-4(34)	8 EA
		LM-3(33)	8 EA
		LM-2(32)	8 EA
LM	LDW280-51642	LM-1(31)	8 EA

PART NO. LDW280-18201-15&-17 GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51642	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	1
		LM-2(32)	1
LM	LDW280-51642	LM-1(31)	1

PART NO. LDW280-18201-11 GAEC SCH NO. 52

WORK PKG FUNCTION NO.110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-19	PRIM NO. 207	JK(001) MP-14A-2/27/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.010 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.	NAS 9-1100	LINE ITEM	DOCUMENTATION TYPE II
DRAWN BY	L. BITTNER 2-10-67	RELIABILITY	
LAYOUT BY	ZUVER		
CHECKED BY	EG 2-13-67		
GROUP LEADER			
ENGR DES INT			
STRUCTURES	W/H 2/21/67	PROJ ENGR	2/23/67
STRUCTURES	JEB 2/21	REL GROUP	
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

COVER
DESCENT STAGE-QUAD III
LOWER METEOROID PROTECTION

SIZE	CODE IDENT NO.		
B	26512	LDW280-18201	A
SCALE	NONE	SHEET 1.00 OF 4.00	

ENG 77.1 12-65

01 NAS 9-1100

1

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18201-19	E		DOUBLER	AL ALLOY SH	QQ-A-250/4	2024-T3	.010 x 2 x 11	NONE	88.	7B
	LDW280-18201-17	↑		CLIP	↑	QQ-A-250/4	2024-T3	.020 x 1 x 2	NONE	88	4A
	LDW280-18201-15			CLIP		QQ-A-250/4	2024-T3	.020 x 1 x 3	NONE	88	6A
	LDW280-18201-13	↓		COVER	↓	QQ-A-250/4	2024-T81	.004 x 14 x 22	NONE	88	3B
	LDW280-18201-11	E		COVER	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 x 21 x 25	NONE	88	5B

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

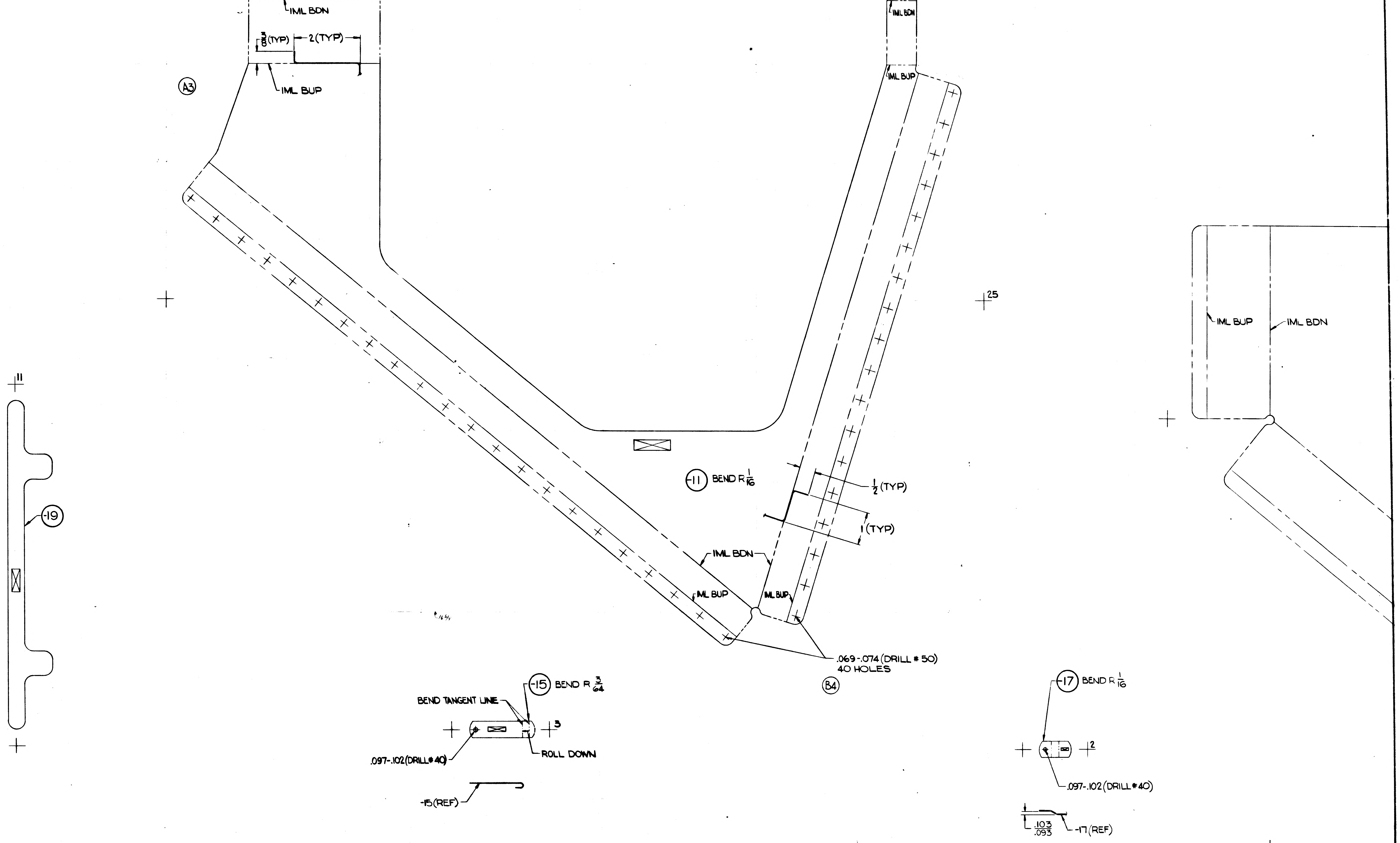
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18201	A
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

01

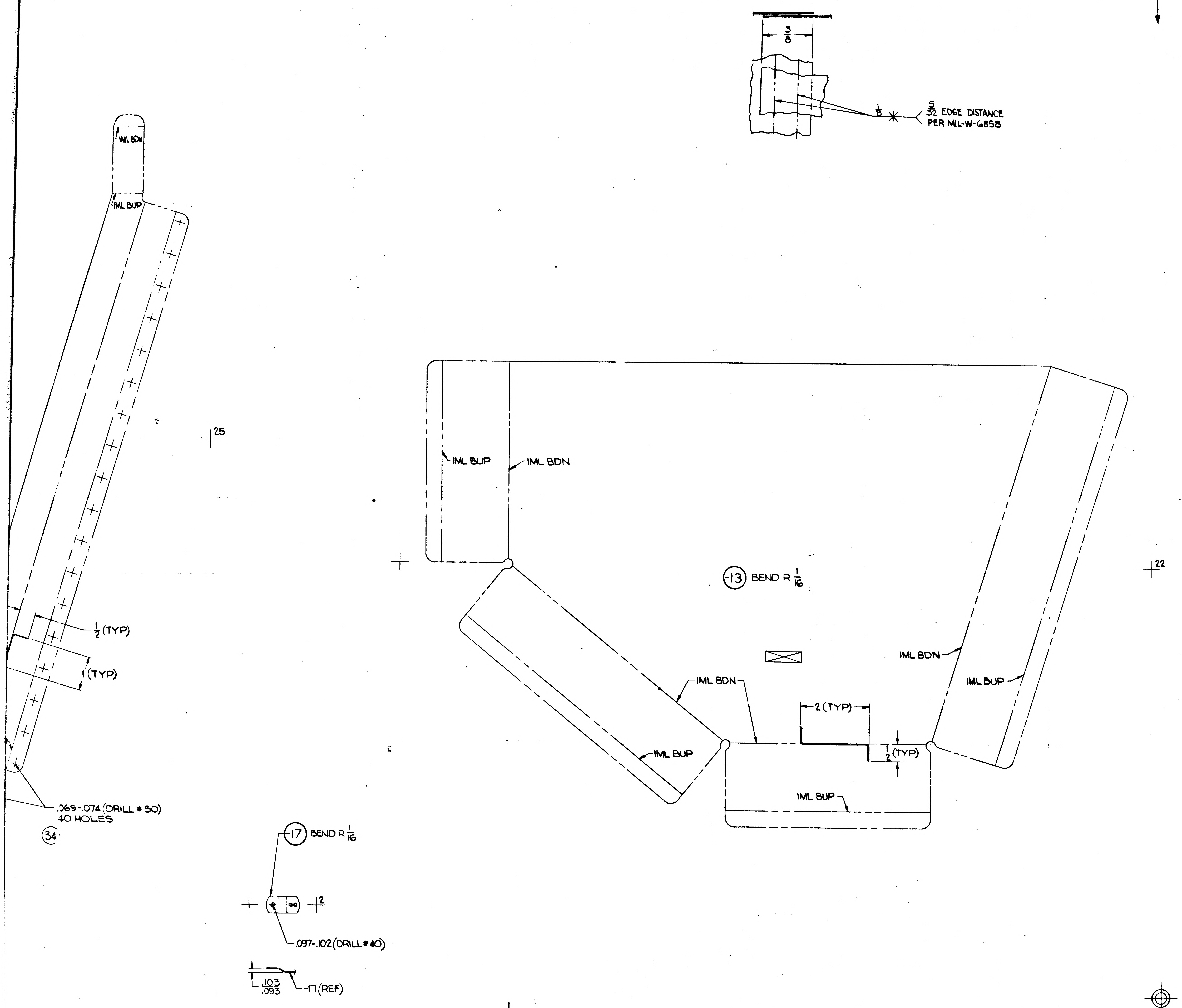
NAS 9-1100


IML BDN
$\frac{3}{8}$(TYP)
2 (TYP)
IML BUP
A3
IML BDN
IML BUP
+25
IML BUP
IML BDN
-11 BEND R $\frac{1}{16}$
$\frac{1}{2}$ (TYP)
1 (TYP)
IML BDN
IML BUP
IML BUP
.069-.074 (DRILL # 50)
40 HOLES
B4
+11
-19
-15 BEND R $\frac{3}{64}$
BEND TANGENT LINE
+3
.097-.102 (DRILL # 40)
ROLL DOWN
-15 (REF)
-17 BEND R $\frac{1}{16}$
+2
.097-.102 (DRILL # 40)
.103
.093
-17 (REF)

LDW280-18201 SHEET 3

01/02 NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. WHERE PARTS ARE LARGER THAN THE BASIC STOCK SIZE OF AVAILABLE MATERIAL, SHEETS MAY BE SPLICED AS SHOWN BELOW. LOCATION, DIRECTION & NUMBER OF SPLICES OPTIONAL


3/8
5/32 EDGE DISTANCE PER MIL-W-6858
60
30
IML BDN
IML BUP
25
IML BUP
IML BDN
-13 BEND R 1/16
22
1/2 (TYP)
1 (TYP)
IML BDN
IML BUP
IML BDN
IML BUP
2 (TYP)
1/2 (TYP)
IML BUP
.069-.074 (DRILL # 50) 40 HOLES
B4
-17 BEND R 1/16
2
.097-.102 (DRILL # 40)
.103
.093
-17 (REF)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	1

DWG SIZE 34 X 77

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 79)= 19 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 4 3/4 SQ. FT.

PRINT TRIM LINE

LDW280-18201A

LDW280-18201A

02/02 NAS 9-1100

LDW280-18201 SHEET 3

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
LM MODEL OR END ITEM	SIZE J · CODE IDENT NO. 26512 · LDW280-18201 · A
	SCALE FULL · SHEET 3.00

1 FOR PHOTO REPRODUCTION 2 FRAMES

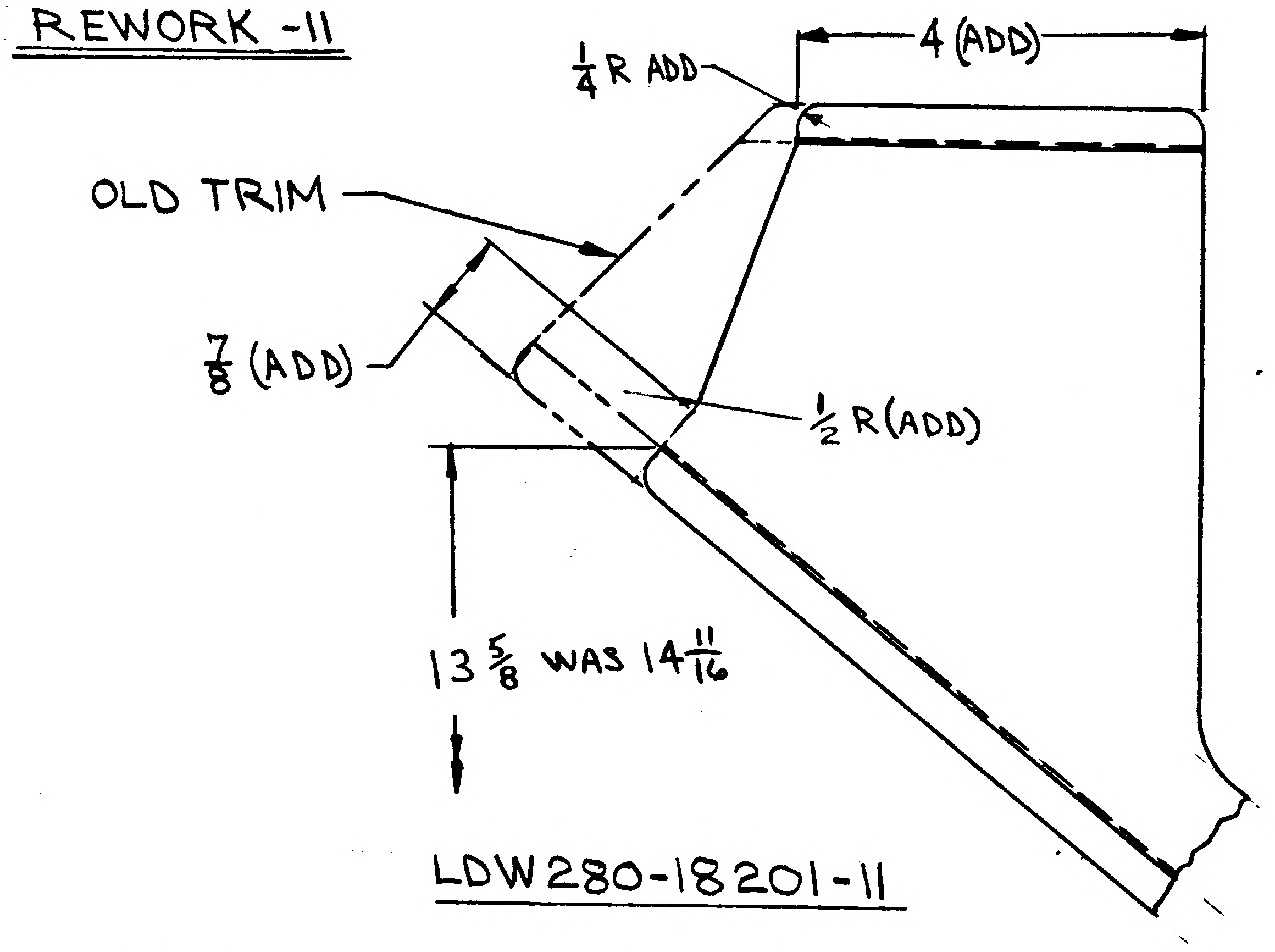
K2

ENG 32.1 REV 3-65 B *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW 280-18201		EO NO. A3	
CONTROL INFO NO. LDW 280A-5068			

REWORK -11



LDW280-18201-11

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO PROVIDE ADEQUATE CLEARANCE FOR EXISTING STRUCTURE

DESCRIPTION OF EO: REWORKED -11 ADDED FOLLOWING DIM 4, 7/8 1/2 R & 1/4 R & 13 5/8 WAS 14 11/16

GAEC EO RELEASE: 1/20/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(3D) THRU	
		LM-15 45	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	1/20/67			1/20/67	1/20/67		1/20/67	1/20/67
/	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: COVER - D/S QUAD III - LWR - METEOROID PROTECTION
DRAWING NO.: LDW280-18201
EO NO.: A3

ISSUED BY V.A. CHRISTINA / J. STRAKOSCH SECTION VDI x1392 GROUP NO. 335 PL 35

01

NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER ~~E~~MF-A

DWG. NO. LDW280-18201		EO NO. B2
CONTROL INFO NO. LDW280A-5583		

THIS IS A REVISION OF E.O. B_1

FOR -21 MATL S/B AL ALLOY SH BARE WAS ALCLAD
GOV'T SPEC S/B QQ-A-250/4 WAS QQ-A-250/5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

2

REASON FOR EO
MAT'L CALLOUT IN ERROR

DESCRIPTION OF EO
REF EO B_1
FOR-21 MATL. AL ALLOY SH BARE WAS ALCLAD
GOV'T SPEC QQ-A-250/4 WAS QQ-A-250/5

Ⓒ GAEC EO RELEASE C
FR 2/23/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(3 1) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQD	DATE	2/18/67			2/18/67	2/20/67		2-22-67	2-22-67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER D/S QUAD III LWR METEOROID PROTECTION	LDW280-18201	B2

ISSUED BY V.A. CHRISTINA/ J.STRAKOSCH SECTION VDI X1392 GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18201 | EO NO. B3
CONTROL INFO NO. LDW280B5758

IN M/B ON -13 & -21

FOR LM-4(34) & LM-5(35) N/A LDW280-54652 (WAS) LDW 280-28652 1 REQ'D/MOD
FOR LM-6(36) THRU LM-15(45) N/A LDW280-66511 (WAS) LDW 280-28652 1 REQ'D/MOD

IN M/B & B/M ON -13 & -21
ADD LFM-200 LM-5(35) N/A LDW280-66511 1 REQ'D/MOD

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD2360 PKG 31 & LCD 2965 PKG 2 (5)

REASON FOR EO: OMITTED ON FIRST RELEASE OF N/A DWG

DESCRIPTION OF EO:
IN M/B ON -13 & -21
FOR LM-4(34) & LM-5(35) N/A LDW280-54652 (WAS) LDW280-28652
FOR LM-6(36) THRU LM-15(45) N/A LDW280-66511 (WAS) LDW280-28652
ADDED LFM-200 LM-5(35) N/A LDW280-66511 1 REQ'D/MOD

GAEC EO RELEASE: (R) C JK 10/5/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM-200	LM-5(35)	
		LM-4(34) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	10/4/68	10/4/68		10-3-68	10/4/68		10/4/68	10-4-68
P	UDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY: C

DRAWING TITLE: COVER D/S-QUAD III-LWR METERIOD PROTECTION

DRAWING NO.: LDW280-18201

EO NO.: B3

CDR 100468

ISSUED BY D.SHAPIRO/P.THORTJUSEN X-1153 SECTION UDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1365
CONTROL IN NO. LDW280B 7424

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18195	C1	SEE DWG
-18196	B2	
-18197	B3	
-18198	B2	
-18199	B2	
-18200	B2	
-18201	B4	
-18202	B5	
-18206	B4	
LDW280-18207	B1	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 1 CCA 1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: 4/10/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	4/[illegible]/69			4-2-69	4/8/69		4/9/69	4/9/69

PRIORITY: C DRAWING TITLE: SEE DWG DRAWING NO. LEO 280 EO NO. 1365

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH. DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1732
CONTROL INFO NO. LDW280B9166

FOR THE DRAWINGS LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS. *

DRAWING NUMBER *	NEXT ASSEMBLY	DWG. TITLE	CHG. LTR
LDW280-51642-5-1	LDW280-58553	SEE DWG	B5
-18140-11,-21,-23,-25,-27&-29	-51642		B3
-18201-15&-17&-19	-51642		B6
-18206-15,-17,-19&-21	-51642		B6
-51818-1	-58553		B2
-18119-11,-13,-15,-17&-19	-51818		A6
-28835-9	-58553		C5
-18190-13	-28835		D3
-54643-1	-28835		A2
LDW280-54832-1	LDW280-28835	SEE DWG	A2

* APPLICABLE DASH NO.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG59 CCA 2205

REASON FOR EO: LMMP REDESIGN. 3 TANK EXPANSION

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF. FROM - *

GAEC EO RELEASE: (5) JK 10/27/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	—			10-20-69	10/21/69		10/20/69	10/22/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE ABOVE	LEO 280	1732

CDR 10-24
ISSUED BY D.SHAPIRO/P.THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDEN⁻ NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1740
CONTROL INFO NO. LDW280B8723

FOR THE DRAWINGS LISTED BELOW REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS.*

DRAWING NUMBER *	NEXT ASSEMBLY	DWG. TITLE	CHG. LTR.
LDW280-66512-1-1	LDW280-66510	SEE DWG	A5
-P18587 -19	-66510		A7
-P18587-11	-66511		
-P18587-13	-66512		
-18201-13 & -21	-66511		B7
-18684-11, -13, -15, -17 & -19	-66511		B3
-18685-11, -13, -15, -17 & -19	-66511		B3
-18686-11, -13, -15 & -17	-66512		B3
-18687-11, -13 & -15	-66512		B3
LDW280-18607-11 & -13	LDW280-58672	SEE DWG	B3

* APPLICABLE DASH NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PKG92

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF. FROM -*

(5)
GAEC EO RELEASE: JK 10/2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO ☐

DISPOSITION OF PARTS: REWORK ☐ | SCRAP ✓

APPROVED BY								
DATE	—	10-20-69		10-20-69			10/20/69	10/21/69
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO280
EO NO.: 1740

CDR 110369

ISSUED BY D. SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

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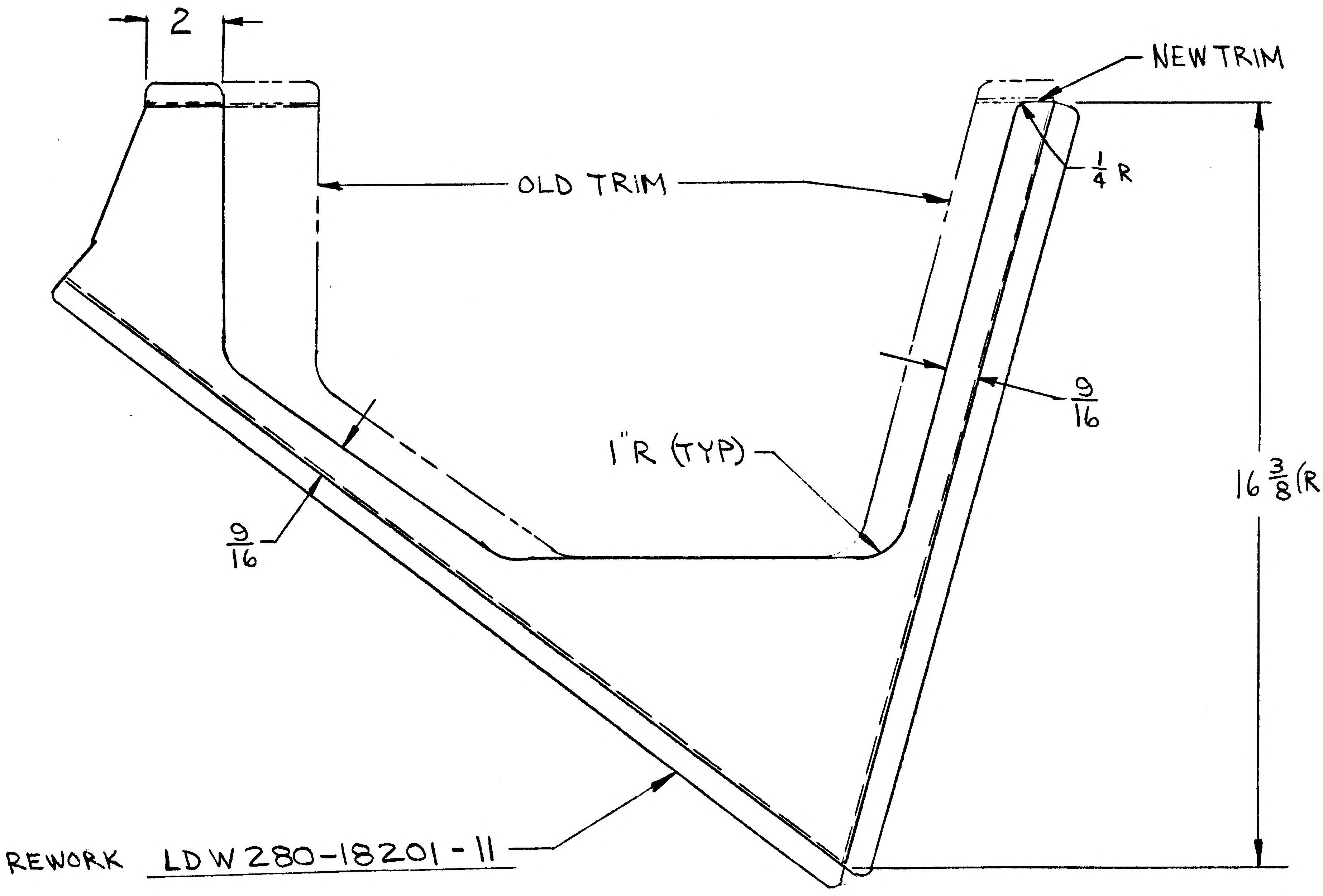
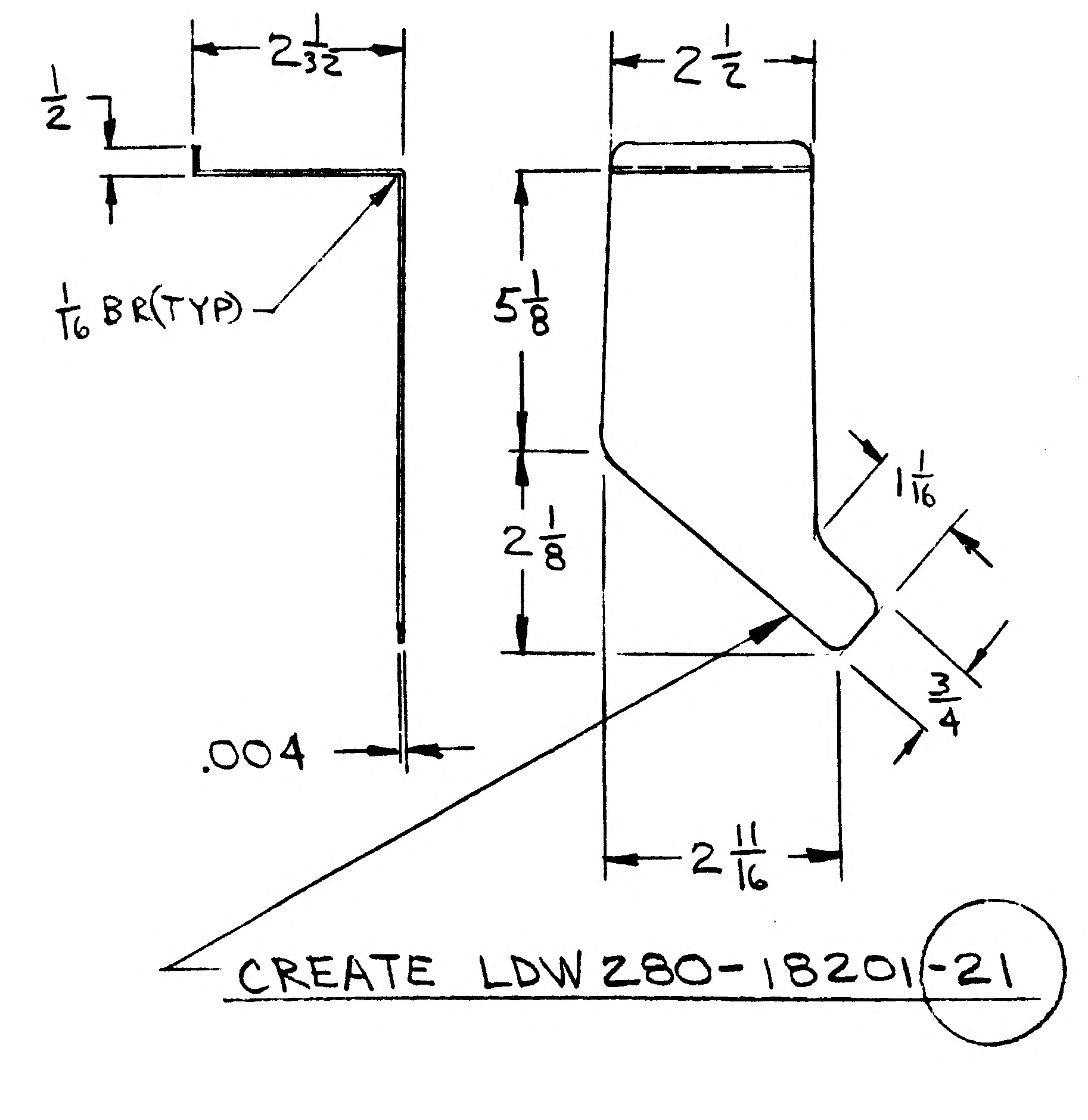
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18201	EO NO.	B1
CONTROL INFO NO.	LDW 280 A 5379		


2
NEW TRIM
OLD TRIM
$\frac{1}{4}$ R
$\frac{9}{16}$
1"R (TYP)
$16\frac{3}{8}$ (REF)
$\frac{9}{16}$
REWORK LDW280-18201-11


$2\frac{1}{32}$
$\frac{1}{2}$
$\frac{1}{16}$ BR (TYP)
.004
$2\frac{1}{2}$
$5\frac{1}{8}$
$2\frac{1}{8}$
$1\frac{1}{16}$
$\frac{3}{4}$
$2\frac{11}{16}$
CREATE LDW280-18201-21

=21
MAT'L: AL ALLOY SH ALCLAD
GOVT SPEC QQ-A-250/5
COM SPEC 2024-T3
FINISH NO 88
PROCESS SYM NONE
I&I = E
STOCK SIZE: .004 x $3\frac{1}{2}$ x 11
N/A LDW280-28652
REQD/MOD: 1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TRIM REQD TO PROVIDE CLEARANCE FOR FUEL LINES	REWORKED -11 CREATED -21 PLATE (1 REQD/MOD)	FR 2/13/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	
		LM-15 45	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY		~							
DATE	2/6/67	~		2/3/67	2/1/67		2/6/67	2-13-67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	S GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER D/S QUAD III LWR METEOROID PROTECTION	LDW280-18201	B1

ISSUED BY V.A. CHRISTINA / J. STRAKOSCH SECTION VDI x1392 GROUP NO. 335 PL 35

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1523
CONTROL INFO NO. LDW 280B 8107

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18190	SEE DWG	D2
195		C4
196		B3
197		B4
198		B3
199		B3
200		B3
201		B5
206		B5
LDW280-18223	SEE DWG	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 28 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: LWB 8-6-69; JK 8/9/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	PJT				N			Bauman
DATE	7-29-69			7/29/69	8-2-69		8/2/69	8/8/69
	VDI							

PRIORITY: C.
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1523

8-22-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18202 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52528	LM-2(32)	1 EA

PART NO. LDW280-18202-11 & -17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23534	LM-2(32)	1 EA

PART NO. LDW280-18202-12 & -15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52537	LM-2 (32) 51	1

PART NO. LDW280-18202-13

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO A		
LAST DASH NO. USED	−17	PRIM NO.	VE(001)	
		207	MP-14	A-12-28-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO: NAS 9-1100 | LINE ITEM NO. 1 | DOCUMENTATION TYPE II

DRAWN BY	C.VASSALLO 12-13-66	WEIGHTS	
LAYOUT BY	FLANDERS	RELIABILITY	
CHECKED BY	EG 12-16-66		
~~GR LEADER~~			
VEH DES INT	[illegible] 12/-/66		
STRUCTURES	WEG WJW 12/22/66	PROJ ENGR	[illegible] 12/27/66
STRUCTURES	J [illegible] 12/27	REL GROUP	[illegible] 12/27/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESENT STAGE QUAD III & IV
DIAGONAL TEE SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18202	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~[illegible]~~ APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00						E.O. - A1	INITIAL DWG RELEASE. PART MADE PER E.O.	LM - 2	NOT	REQD	C. Vassallo 12.13.66	12/20	
	2	1.10, 3.00							ON - 15 & - 17 ADDED 1 5/16 DIMENSION		"	"			
	3							©	ON - 15 RELOCATED 11/16 DIMENSION				ES		

FOR CONTINUATION OF REVISIONS SEE SHEET ________

ENG 77.3 5-65

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18202	A
SCALE NONE			SHEET 1.10

01 NAS 9 - 1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18202-17	E	ANGLE	AL ALLOY SH	QQ-A-250\12	7075-0	.071 X 2 X 3	T6	88	
								LDW280-18202-15	E	↕	↕	↕	↕	↕	↕	↕	
								LDW280-18202-13	E	↕	↕	↕	↕	↕	↕	↕	
								LDW280-18202-12	E	↕	↕	↕	↕	↕	↕	↕	
								LDW280-18202-11	E	ANGLE	AL ALLOY SH	QQ-A-250\12	7075-0	.071 x 2 x 3	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

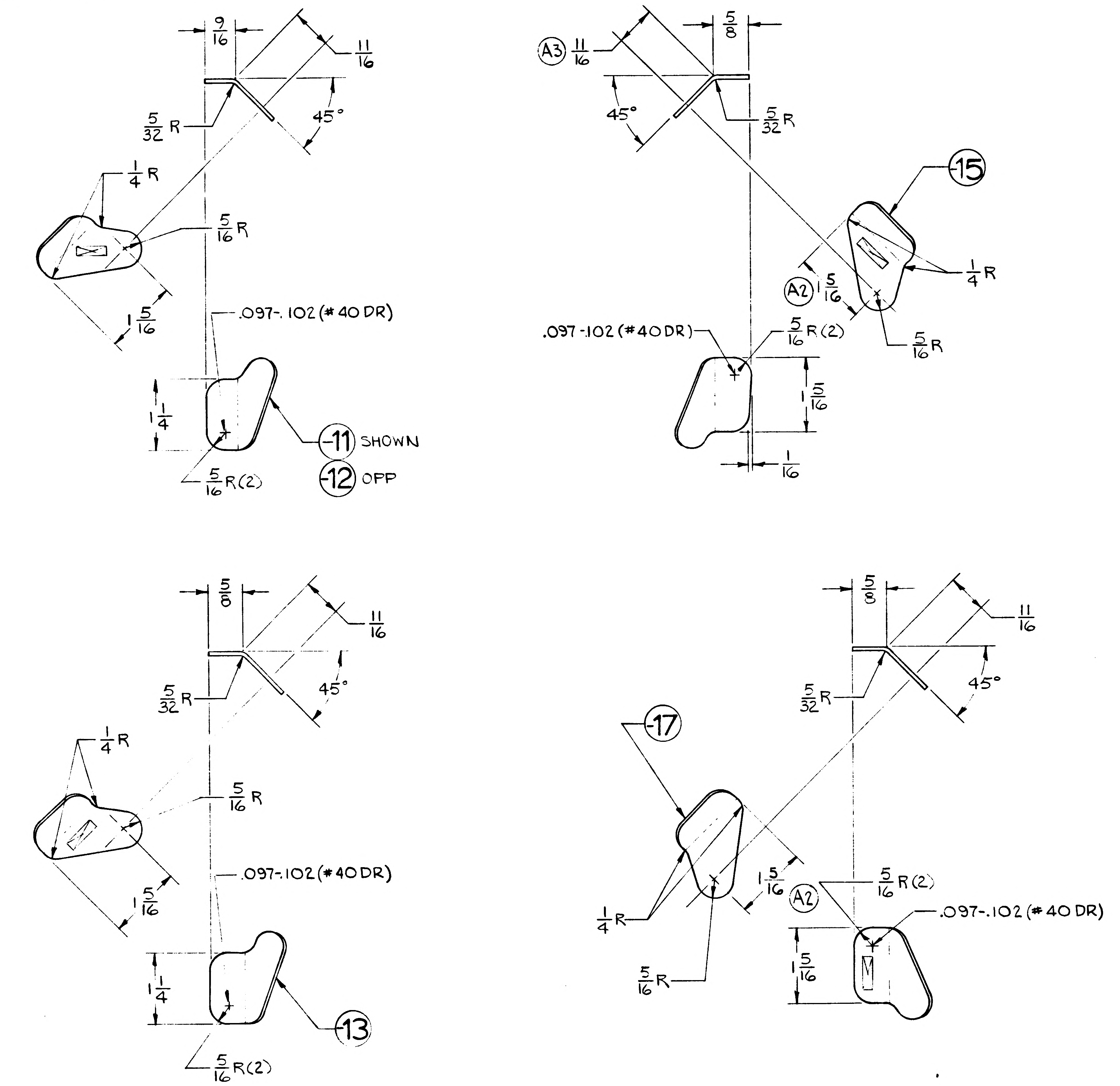
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18202	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

01

NAS 9-1100


9/16
11/16
5/32 R
45°
1/4 R
5/16 R
1 5/16
.097-.102 (#40 DR)
1 1/4
5/16 R (2)
⑪ SHOWN
⑫ OPP
A3
11/16
5/8
45°
5/32 R
⑮
1/4 R
A2
1 5/16
5/16 R
.097-.102 (#40 DR)
5/16 R (2)
1 5/16
1/16
5/8
11/16
5/32 R
45°
1/4 R
5/16 R
1 5/16
.097-.102 (#40 DR)
1 1/4
⑬
5/16 R (2)
⑰
5/8
11/16
5/32 R
45°
1 5/16
A2
5/16 R (2)
.097-.102 (#40 DR)
1/4 R
5/16 R
1 5/16

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	/
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM	SIZE D	CODE IDENT NO. 26512	LDW280-18202	A
MODEL OR END ITEM	SCALE F[illegible]		SHEET [illegible]	

LDW280-18202 A

ENG 73-3 6-64

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-18202		EO NO. B1
CONTROL INFO NO LDW280-3781		

IN MODEL BLOCK ADD LM-3 REQTS FOR
LDW280-18202-11, -12, -13, -15 & -17 1 REQD. PER
MODULE NEXT ASSYS FOR -11 & -17 LDW280-52528
" " FOR -12 & -15 LDW280-73534
" " FOR -13 LDW280-52537

ADD LM-4 REQTS. THRU LM-15
LDW280-18202-11, -12, -13, -15 & -17 1 REQD. PER MODULE
NEXT ASSYS FOR -11 & -17 LDW280-54528
" " " -12 & -15 LDW280-54534
" " " -13 LDW280-54537

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE	
PARTS REQD. FOR LM-3 THRU LM-15	ADDED, LM-3 THRU. LM-15 REQTS. FOR -11, -12, -13, -15 & -17	FR	12/16/6

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQD.
REVISE DWG	RECORD EO	REWORK	SCRAP

	APPROVED BY	DATE	
	JAS	12/11/66	VDI
SUPPORT			
RELIAB. GROUP			
GROUP LEADER			
STRESS GROUP	WJM	12/14/66	
LIAISON ENGRG			
PROJ ENGRG		12-14-66	
GOVT		12-15-66	

6

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE D.S. QUAD III & IV DIAGONAL TEE SUPPORT	LDW280-18202	B1

ISSUED BY R. FLANDERS X1153 11-30-66 SECTION VEH. DES. INT. GROUP NO. 335 PL

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18202
EO NO. B3
CONTROL INFO NO. LDW280A9995

ON -15 & -12 REMOVE LM-4(34) THRU LM-15(45) FOR
N/A LDW280-54534. (EFF WAS LM-2(32) THRU LM-15(45))

ON -17 & -11 REMOVE LM-4(34) THRU LM-15(45) FOR
N/A LDW280-54528. (EFF WAS LM-2(32) THRU LM-15(45))

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2011 CCA 668	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PROVIDE STRUCTURAL SPT FOR MOD. EQUIPMENT STOWAGE PKG.	ON -12 & -15 REMOVED LM-4 THRU LM-15 EFF: FOR LDW280-54534. ON -11 & -17 REMOVED LM-4 THRU LM-15 EFF FOR LDW280-54528	Ⓡ C VK 12/19/

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-11, -12 -15, -17

APPROVED BY								
DATE	11/22/67			11-22-67	12/6/67		11/28/67	12-19-67
B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE ~ D/S ~ QUAD III & IV DIAGONAL TEE SUPPORT	LDW280-18202	B3

12/20/67
SUED BY J.J. ROGERS/P. THORJUSEN X1392
SECTION VEH DES & INT.
GROUP NO. 335
PL 25

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18202 | EO NO. B4
CONTROL INFO NO. LDW280B1605

FOR DASH NO'S LISTED ADD LTA-3(13) EFFECTIVITY
N/A & QTY AS NOTED BELOW

DASH NO.	NEXT ASSY	QTY/MOD
-11	LDW280-23528	1/MOD
-12	LDW280-23534	1/MOD
-13	LDW280-23537	1/MOD
-15	LDW280-23534	1/MOD
-17	LDW280-23528	1/MOD

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 2134 PKG 3

REASON FOR EO: PREPARATION OF LTA-3 FOR DROP TEST

DESCRIPTION OF EO: FOR -11, -12, -13, -15 & -17 ADDED LTA-3(13) REQTS

GAEC EO RELEASE: JK 1/24/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	1/25/68			1/24/68	1/25/68	1/24/68	1-26-68

PRIORITY: C

DRAWING TITLE: ANGLE DESCENT STAGE QUAD III & IV DIAGONAL TEE SUPPORT

DRAWING NO. LDW280-18202 EO NO. B4

CDR 1/24/68
ISSUED BY G. BARNES | P. THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1365
CONTROL INFO NO. LDW280B 7424

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280-18195	C1	SEE DWG
✓ -18196	B2	↑
✓ -18197	B3	
✓ -18198	B2	
✓ -18199	B2	
✓ -18200	B2	
✓ -18201	B4	
✓ -18202	B5	
-18206	B4	↓
LDW280-18207	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: 4/19/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY				BGF	NJH		
DATE	4/9/69			4-2-69	4/8/69		4/9/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

~~GOVT~~ 4/14/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1365

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH. DES INT GROUP NO. 335 25

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NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280	EO NO. 547
CONTROL INFO NO. LDW280A-6136	

FOR ALL DASH NO.* ON THE FOLLOWING DWGS WHICH HAVE LM-6 EFF ADD LTA-3D|R EFF QTY & N/A TO REMAIN THE SAME AS ON LM-6

DRAWING *	TITLE	CHANGE NO.
LDW280-17787 ✓	SEE DWG	B2
-17792 ✓		B5
-17797 ✓		A2
-17830 ✓		B1
-17841 ✓		A2
-17842 ✓		B1
-17843 ✓		A2
-17844 ✓		A2
-17845 ✓		A2
-17846 ✓		A2
-17850 ✓		B2
-17856 ✓		A2
-17874 ✓		B2
-17882 ✓		B1
-17883 ✓		B3
-17884 ✓		B2
-17885 ✓		B3
-17886 ✓		C4
-17887 ✓		B2
-17891 ✓		A3
-17906 ✓		B1
-17943 ✓		B2
-17948 ✓		B1
-17958 ✓		B2
-17969 ✓		B2
-17973 ✓		A3
-17977 ✓		B1
-17981 ✓		B1
-18064 ✓		B1
-18065 ✓		C1
-18066 ✓		A2
-18067 ✓		A3
-18068 ✓		A2
-18089 ✓		B2
-18090 ✓		B4
-18137 ✓		B2
-18195 ✓		C2
LDW280 -18202 ✓		B2
LDW280P 18133		A2
LDW 280-54684		A2
LDW 330-52056		B3
	SEE DWG.	

DETAIL SPEC REQ		CL II ENGRG CHG ✓	CL I ENGRG CHG	LCD19-1242 2

REASON FOR EO: FAILURE OF LTA-3D IN STATIC TEST

DESCRIPTION OF EO: IN M/B FOR * ADDED LTA-3DR EFF

GAEC EO RELEASE: C JK 4/4/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R (76)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	RQD	DATE 3/28/67				3/28/67	3/31/67		3·30·67	4/6/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	YDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 547

ISSUED BY G. BARNES/J. STRAKOSCH X1153 SECTION YDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[illegible] LEO 280
EO NO. 1646
CONTROL INFO NO. LDW 280B 8305

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) ADD LTA-11 (23) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18202	SEE DWG	B6
✓ 398		A4
✓ 428		B5
✓ 434		C2
✓ 437		B7
✓ 452		A2
✓ LDW280-17876	SEE DWG	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 91, (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

② GAEC EO RELEASE: 8-21-69; JK 8/28/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	CBF				N		
DATE	7-30-69			7/29/69	8/1/69		8/?/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1646

9-26-69
ISSUED BY G. HANSMANN X87222 (ZF) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1710
CONTROL INFO NO. LOW280B9064

FOR DASH NOS. (*) NOTED ON FOLLOWING DWGS.
REMOVE LM-10(40) THRU LM-14(44) AND LTA-11(23) EFF.

DRAWING NO.	DASH NO(*)	TITLE	N/A	CHG.
[illegible]	-13-[illegible]			
✓ LOW 280 M17555	-1	SEE DWG	LOW28054537	B4
✓ LOW280-17672	-21	SEE DWG	LOW28054537	C7
✓ LOW280-18202	-13	SEE DWG	LOW28054537	B7

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD3994 PKG 65

REASON FOR EO: BATTERY RELOCATED TO AFT BULKHEAD.

DESCRIPTION OF EO: FOR (*) REMOVED LM-10(40) THRU LM-14(44) AND LTA-11(23)

Ⓡ GAEC EO RELEASE: GS 10-7-69 | LK 10-3-69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40)	THRU. LM-	14(44)
	& LTA-11(23)		

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: REWORK | ✓ SCRAP

APPROVED BY	J.D.R.			PST	W.H.			LM
DATE	10/2/69			10-2-69	10/3/69	10/3/69		10/7/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	ENGRG PROJ		~~CONT~~

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1710

CDR100869
ISSUED BY Pat Garahan / Gus Hansmann SECTION VEH DES INT X87222 GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~CUST~~ APPD
A	1	1.00, 1.10, 2.00 & 3.30					✓	EO A1	INITIAL DWG RELEASE PARTS MADE PER EO	LM-1 TH 1-15	NOT	REQ'D	FITZ- 12-8-66	12-21	12/21/66

LTR	~~GROUP LDR~~	VEH.DES.INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	
A		10/20/66	12/21/66	12/2			

CHG APPROVED

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18206	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18206 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51642	LM-15(45)	1
LM		LM-14(44)	1
LM		LM-13(43)	1
LM		LM-12(42)	1
LM		LM-11(41)	1
LM		LM-10(40)	1
LM		LM-9(39)	1
LM		LM-8(38)	1
LM		LM-7(37)	1
LM		LM-6(36)	1
LM		LM-5(35)	1
LM		LM-4(34)	1
LM		LM-3(33)	1
LM		LM-2(32)	1
LM	LDW280-51642	LM-1(31)	1
PART NO. LDW280-18206-13		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51642	LM-15(45)	4
LM		LM-14(44)	4
LM		LM-13(43)	4
LM		LM-12(42)	4
LM		LM-11(41)	4
LM		LM-10(40)	4
LM		LM-9(39)	4
LM		LM-8(38)	4
LM		LM-7(37)	4
LM		LM-6(36)	4
LM		LM-5(35)	4
LM		LM-4(34)	4
LM		LM-3(33)	4
LM		LM-2(32)	4
LM	LDW280-51642	LM-1(31)	4
PART NO. LDW280-18206-11		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO A

PRIM NO. 207 | CE(001) MP-14 | A-12-28-6 | EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM I

DOCUMENTATION TYPE II

DRAWN BY	FITZGERALD 12/7/	RELIABILITY	
LAYOUT BY	V.CHRISTINA		
CHECKED BY	J.S. 12-10-66		
~~GR.LEADER~~			
VEH.DES.INT.			
STRUCTURES	WJU 12/21/66	PROJ ENGR	12-21
STRUCTURES		REL GROUP	12/21/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLAMP
DESCENT STAGE - QUAD III - LWR
METEROID PROTECTION

SIZE B

CODE IDENT NO. 26512

LDW280-18206 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

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NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18206-13	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024T81	.004 x 3 x 3	NONE	88	
		LDW280-18206-11	E	CLAMP	AL ALLOY SH	QQ-A-250/5	2024T36	.020 x 2 x 8	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18206	A

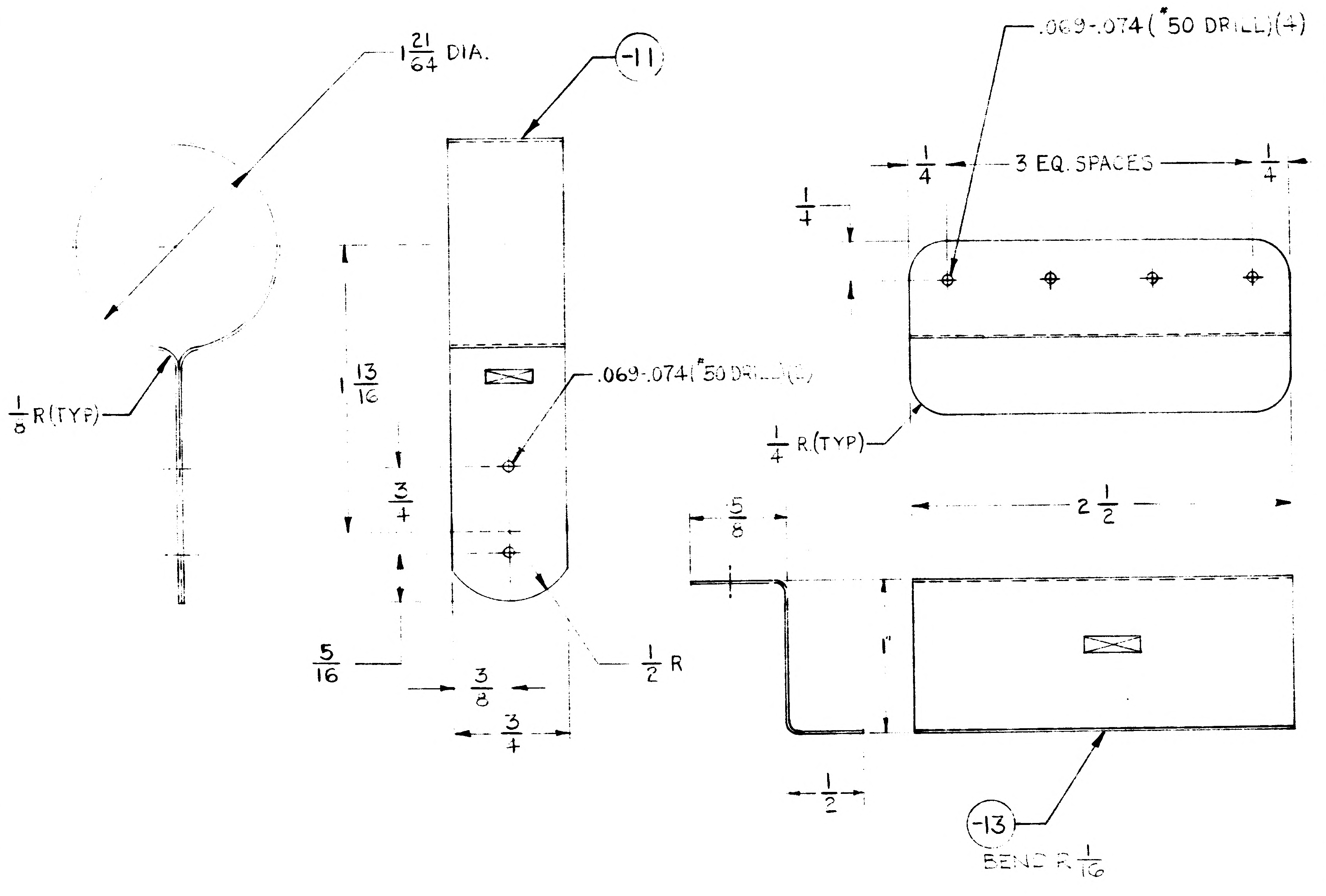
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
$\sqrt{125}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\sqrt{200}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL $\checkmark$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-18206 A

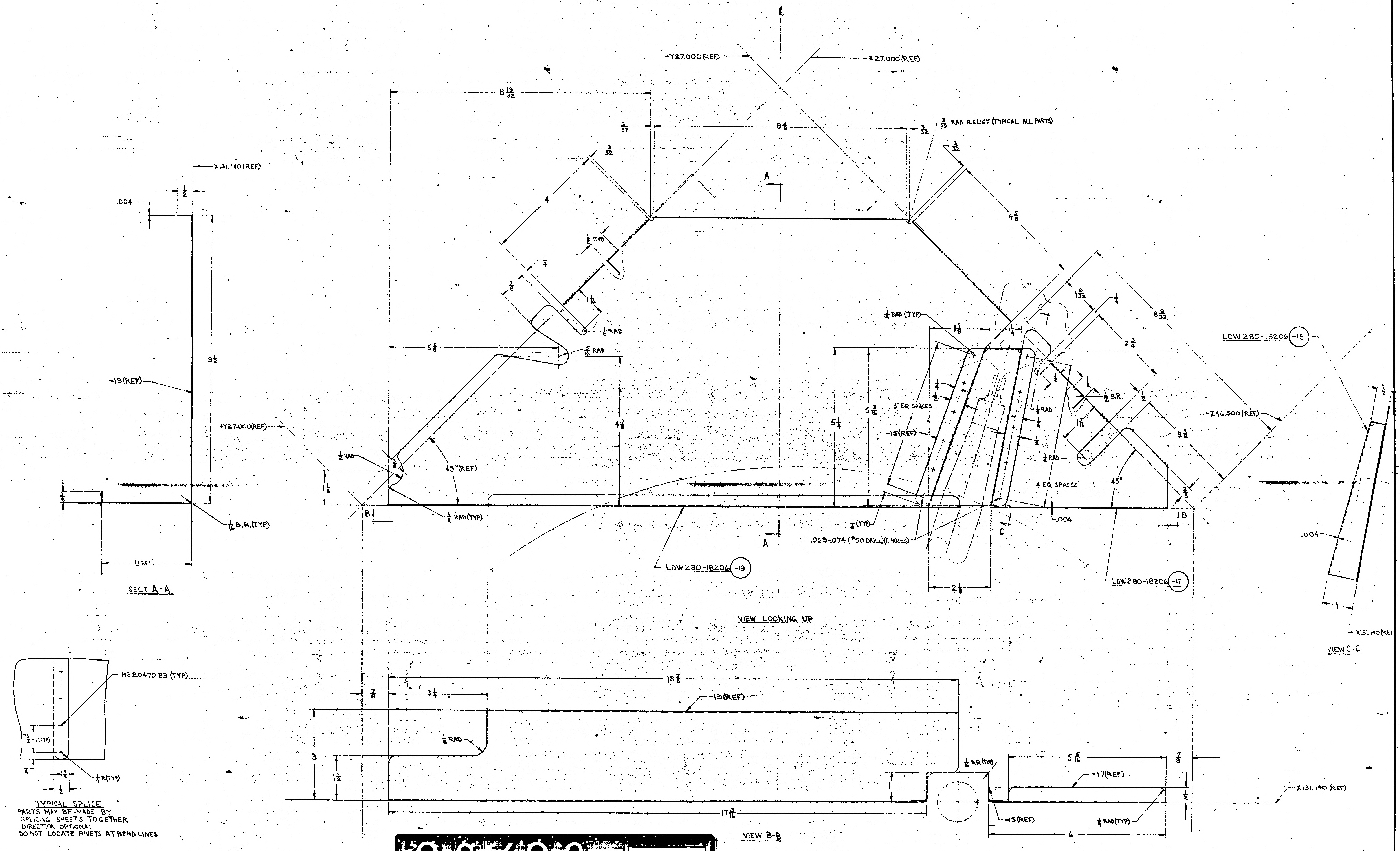
LDW280-18206 A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18206	A
	SCALE 2 X		SHEET	

ENG 73-3 11-64

01 NAS 9-1100



℄
+Y27.000 (REF)
-Z 27.000 (REF)
8 19/32
8 3/8
3/32
3/32 RAD RELIEF (TYPICAL ALL PARTS)
3/32
3/32
4
4 5/8
1/2 (TYP)
1/4
7/8
1 1/16
1/8 RAD
5/8
1/16 RAD
4 7/8
1/2 RAD
1 1/8
45° (REF)
1/4 RAD (TYP)
+Y27.000 (REF)
A
A
B
B
C
C
1/4 RAD (TYP)
1 7/8
1 1/4
1 9/32
1/4
8 9/32
2 3/4
5 1/4
5 3/16
5 EQ SPACES
-15 (REF)
1/8 RAD
1/4
1/2
1/16 B.R.
1 1/4
1/4 RAD
4 EQ SPACES
45°
3 1/2
3/8
-Z 46.500 (REF)
.004
1/4 (TYP)
.063-.074 (#50 DRILL) (11 HOLES)
2 1/8
LDW 280-18206 -15
LDW 280-18206 -19
LDW 280-18206 -17
VIEW LOOKING UP
X131.140 (REF)
.004
1/2
9 1/2
-19 (REF)
1/16 B.R. (TYP)
3/8
(3 REF)
SECT A-A
1/2
.004
1
X131.140 (REF)
VIEW C-C
MS 20470 B3 (TYP)
3/4 (TYP)
1/4
1/8 R (TYP)
1/2
TYPICAL SPLICE
PARTS MAY BE MADE BY
SPLICING SHEETS TOGETHER
DIRECTION OPTIONAL
DO NOT LOCATE RIVETS AT BEND LINES
18 7/8
7/8
3 1/4
-19 (REF)
1/2 RAD
3
1 1/2
1/8 BR (TYP)
17 13/16
5 5/16
7/8
-17 (REF)
1/2
X131.140 (REF)
-15 (REF)
1/4 RAD (TYP)
6
VIEW B-B

02/02 NAS 9-1100

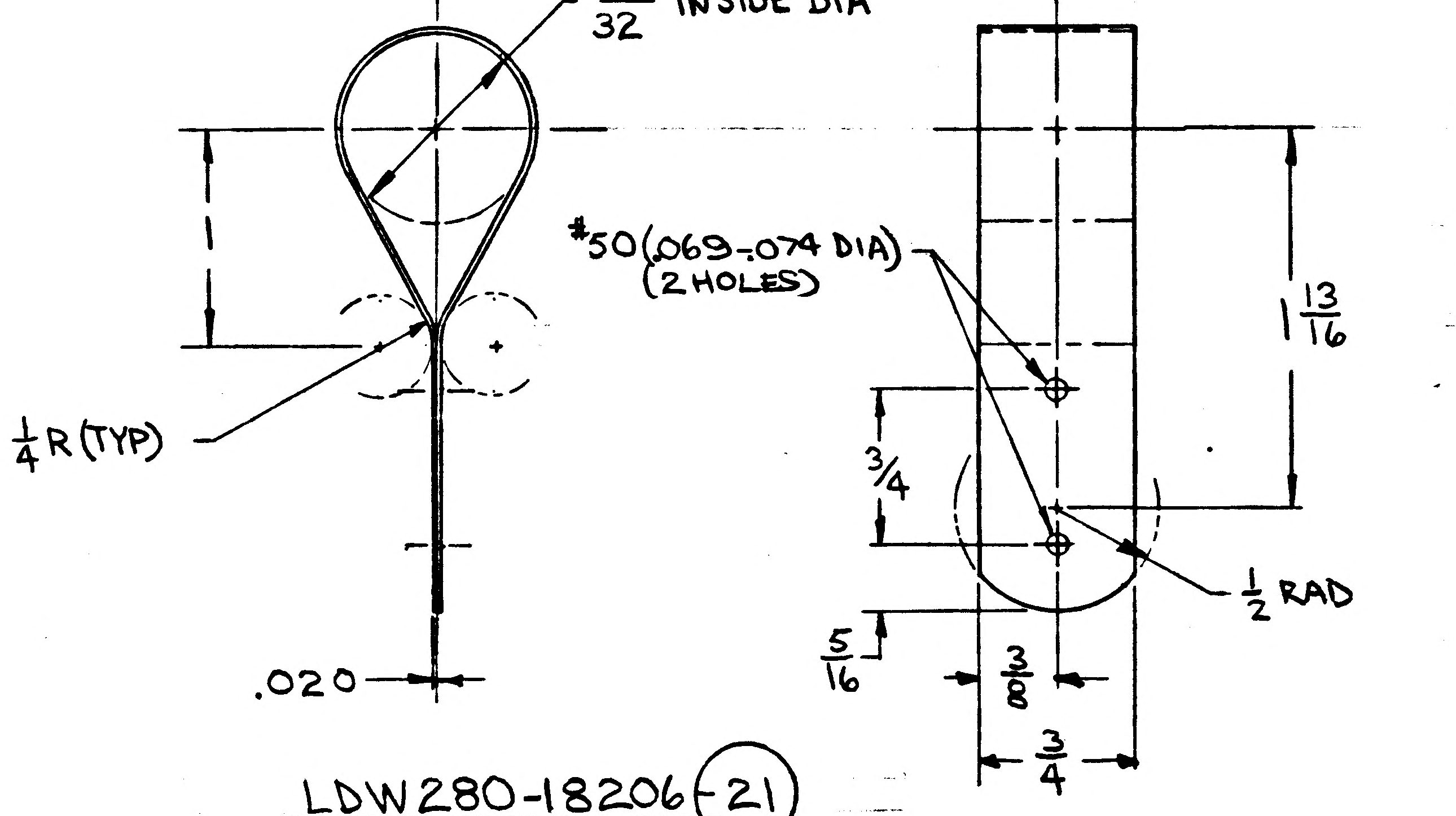
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18206		EO NO. B2
CONTROL INFO NO. LDW280A4683		

REMOVE -11 FROM LM-2(32) THRU LM-15(45) EFF
CREATE -21 EFF ON LM-2(32) THRU LM-15(45)



MAT'L: AL ALLOY SH ALCLAD
GOVT SPEC: QQ-A-250/5
COML SPEC: 2024-T3
FINISH NO.: 88
PROCESS SYM: NONE
I&T = E
STOCK SIZE: .020 × 1 1/4 × 7 1/2
N/A: LDW280-51642
REQ'D/MOD: 4

LDW280-18206-(21)
CLAMP

DETAIL SPEC REQ		CL II ENGRG CHG	√	CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
RE DESIGN OF S/C He TANK STRUTS REQUIRES NEW CLAMPS FOR METEOROID PROTECTION (LCR 746)	REMOVED -11 FROM LM-2(32) THRU LM-15(45) EFF CREATED -21 EFF LM-2(32) THRU LM-15(45) (4 REQD/MOD)	C FR 1/5/7

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	√			-11	DATE	1/5/67				1/5/67		1/5/67	1/5/67
LM		LM-2(32) THRU		REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	~~GROUP~~ LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
		LM-15(45)														

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLAMP D/S QUAD III LWR METEOROID PROTECTION	LDW280-18206	B2

ISSUED BY V.A. CHRISTINA / J. STRAKOSCH
SECTION VDI X1153
GROUP NO. 335
PL 35

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1365
CONTROL INFO NO. LDW280B 7424		

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280-18195	C1	SEE DWG
✓ -18196	B2	↑
✓ -18197	B3	
✓ -18198	B2	
✓ -18199	B2	
✓ -18200	B2	
✓ -18201	B4	
✓ -18202	B5	
✓ -18206	B4	↓
LDW280-18207	B1	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 1 CCA 1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: JK 4/19/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG	GOVT
APPROVED BY								
DATE	[illegible]			4-2-69	4/8/69		4/9/69	4/9/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1365

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1732
CONTROL INFO NO. LDW280B9166

FOR THE DRAWINGS LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS. *

DRAWING NUMBER *	NEXT ASSEMBLY	DWG. TITLE	CHG. LTR.
LDW280-51642-5-1	LDW280-58553	SEE DWG	B5
-18140-11,-21,-23,-25,-27&-29	-51642		B3
-18201-15&-17&-19	-51642		B6
-18206-15,-17,-19&-21	-51642		B6
-51818-1	-58553		B2
-18119-11,-13,-15,-17&-19	-51818		A6
-28835-9	-58553		C5
-18190-13	-28835		D3
-54643-1	-28835		A2
LDW280-54832-1	LDW280-28835	SEE DWG	A2

* APPLICABLE DASH NO.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG59 CCA 2205 (5)

REASON FOR EO: LMMP REDESIGN. 3 TANK EXPANSION

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF. FROM - *

GAEC EO RELEASE: JK 10/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	—			10-20-69	10/21/69		10/20/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE ABOVE	LEO280	1732

CDR 10-24

ISSUED BY D.SHAPIRO/P.THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

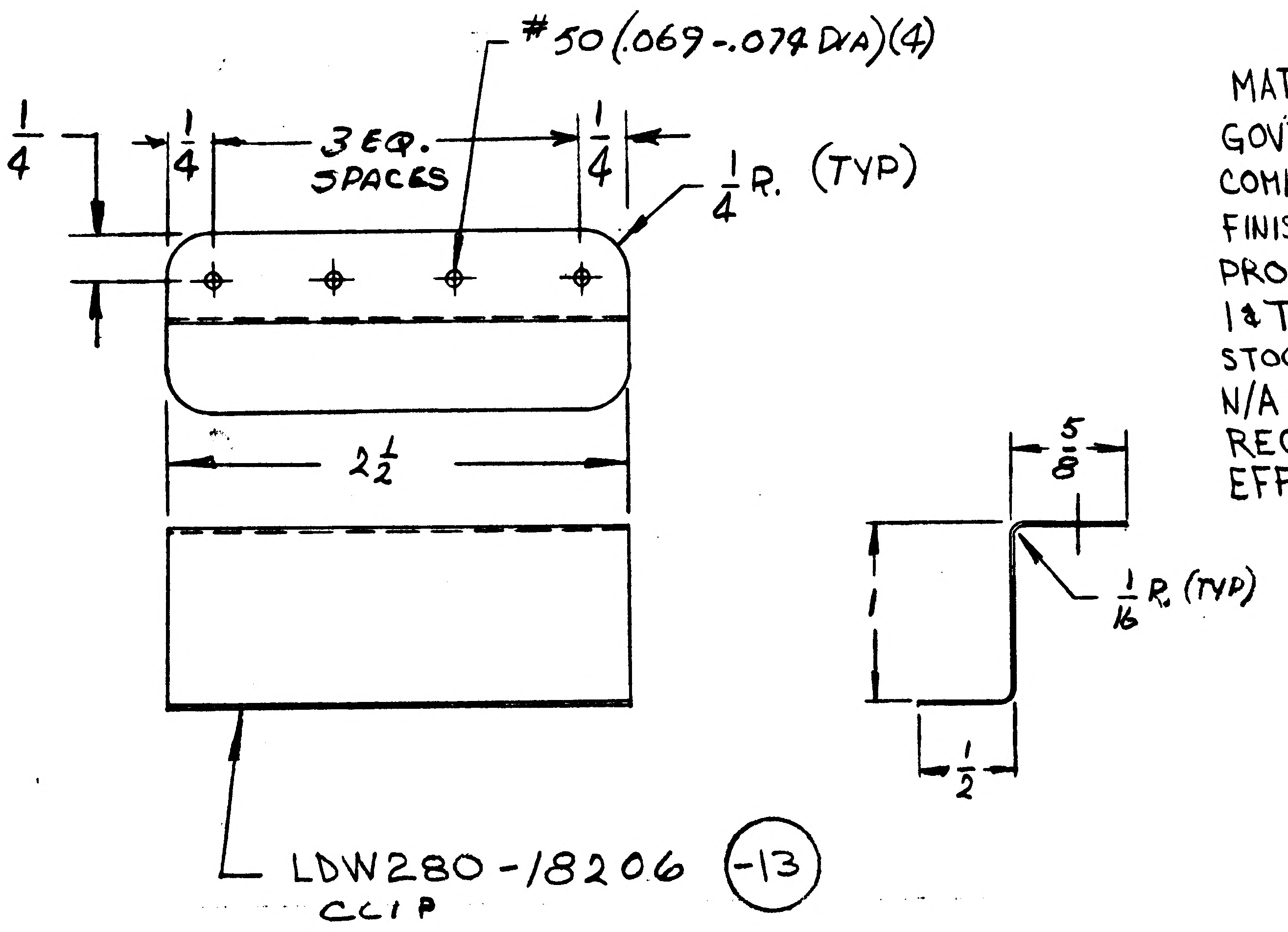
NAS 9-1100

ENG 32.1 REV 3-65

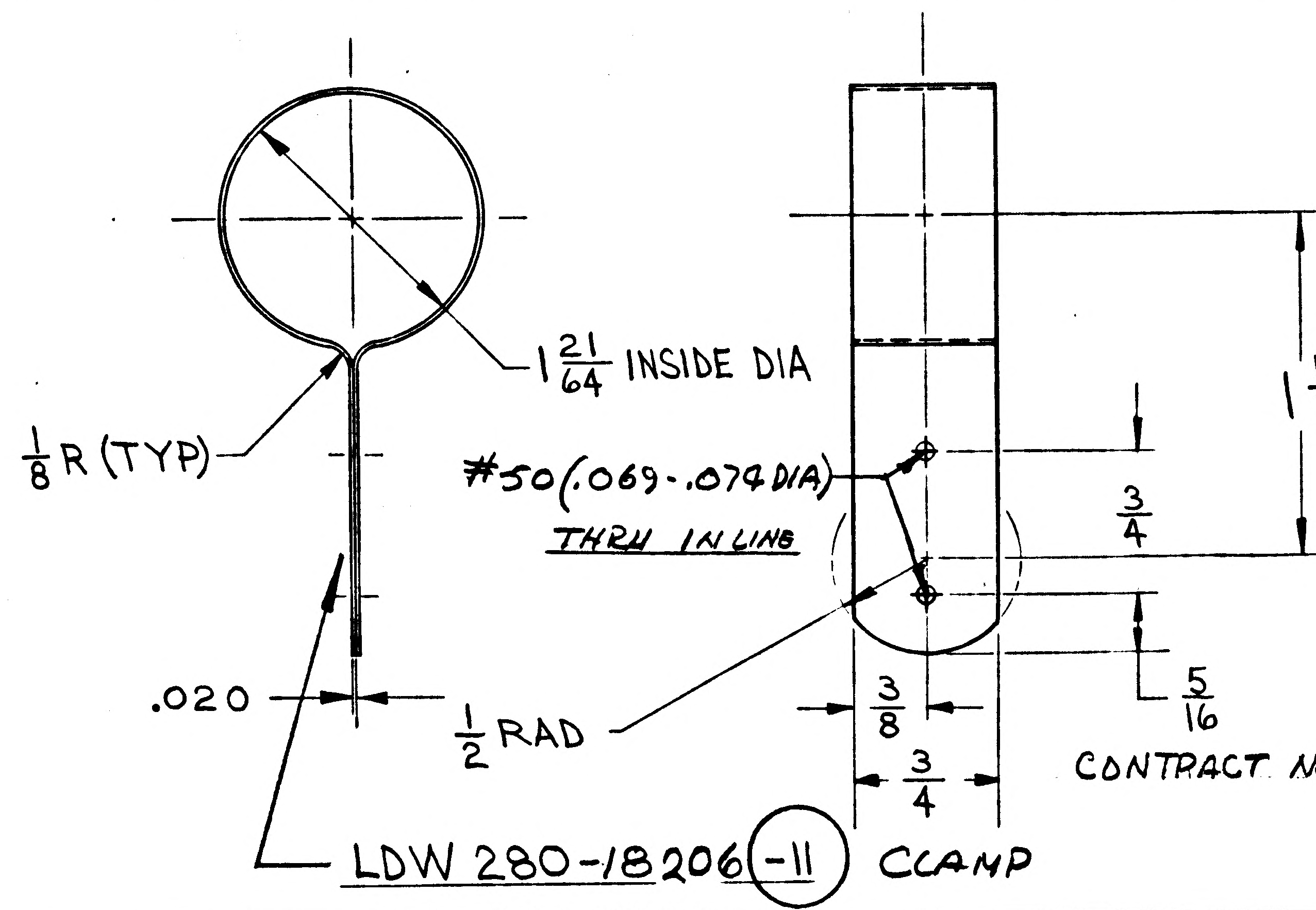
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18206
EO NO. A1
CONTROL INFO NO. LDW280 A 36/5

01 NAS 9-1100


#50 (.069-.074 DIA)(4)
1/4
1/4
3 EQ. SPACES
1/4
1/4 R. (TYP)
2 1/2
5/8
1/16 R. (TYP)
1
1/2
LDW280-18206 (-13)
CLIP

MATL: AL ALLOY SH
GOVT SPEC: QQ-A-250/4
COML SPEC: 2024-T81
FINISH NO: 88
PROCESS SYM: NONE
I&T: -E
STOCK SIZE: .004 × 3 × 3 1/2
N/A: LDW 280-51642
REQ'D/MOD: 1
EFF LM-1-15 (31-45)


1 21/64 INSIDE DIA
1/8 R (TYP)
#50 (.069-.074 DIA) THRU IN LINE
.020
1/2 RAD
3/8
3/4
3/4
5/16
1 13/16
LDW 280-18206 (-11) CLAMP

MATERIAL: AL ALLOY SH
GOVT SPEC: QQ-A-250/5
COML SPEC: 2024-T36
FINISH NO.: 88
PROCESS SYM: NONE
I&T -E
STOCK SIZE: .020 × 1 1/2 × 8
N/A: LDW 280-51642
REQ'D/MOD: 4
EFF: LM-1-15 (31-45)

CONTRACT NO. NAS-9-1100 LINE ITEM I
DOCUMENTATION TYPE II
DRAWING NOT MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

2

REASON FOR EO: SUPPORT FOR METOROID SHIELD

DESCRIPTION OF EO: E.O. A, INITIAL DRAWING RELEASE, PARTS MADE PER E.O.

GAEC EO RELEASE: FR 11/30/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 1-15 (31-45)	

DRAWING CHANGE REQD: NOT REQD (REVISE DWG / RECORD EO)

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY									RHC	
DATE	11/22				11/22	11/23/66		11-23-66	11-29-66	
5	VDI	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

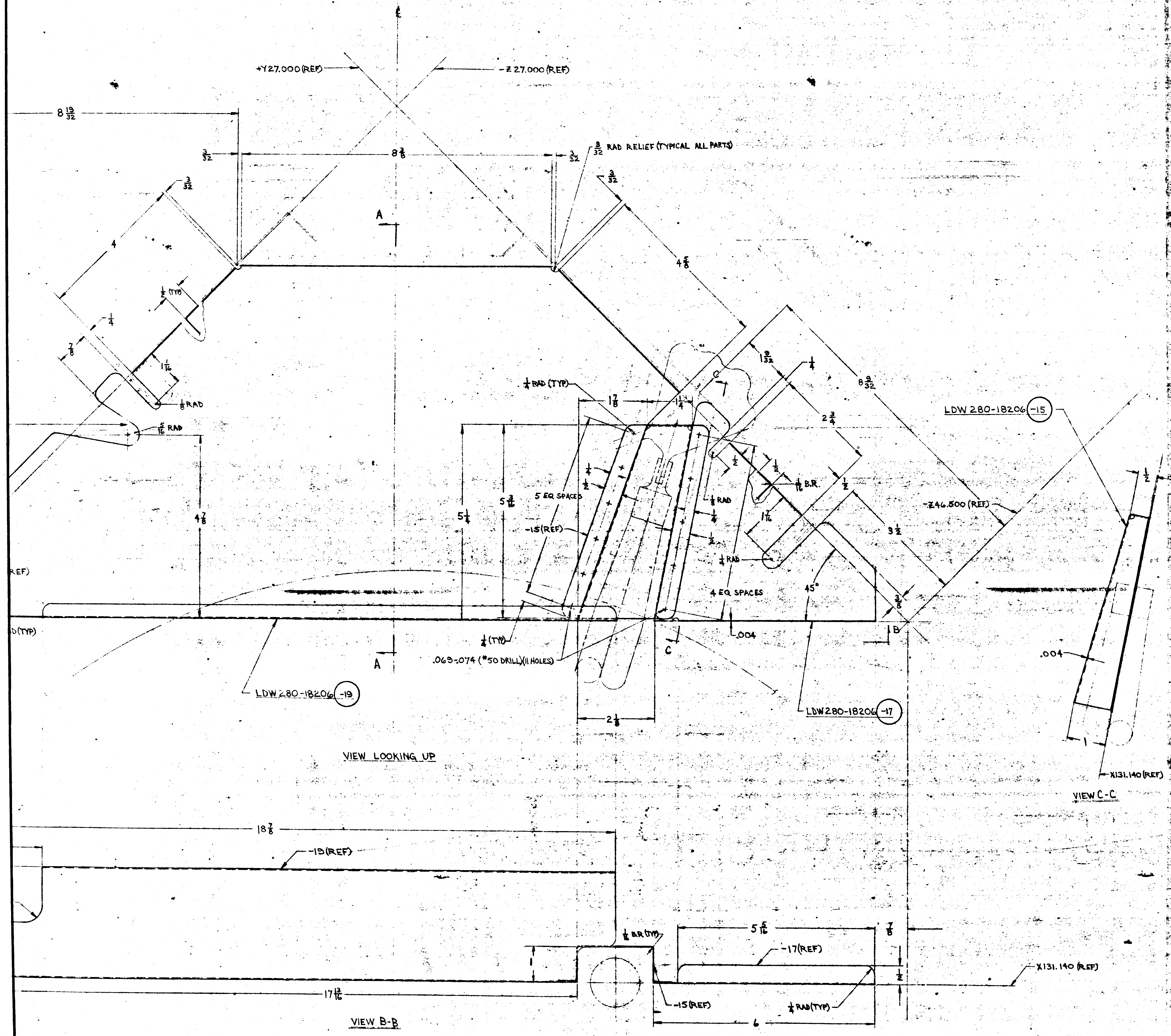
PRIORITY: C

DRAWING TITLE: CLAMP D/S QUAD III - LWR METOROID PROTECTION

DRAWING NO.: LDW 280-18206

EO NO.: A1

ISSUED BY V.A. CHRISTINA/ J.STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35


+Y27.000 (REF)
-Z27.000 (REF)
8 19/32
3/32
8 7/8
3/32
3/32 RAD RELIEF (TYPICAL ALL PARTS)
3/32
3/32
A
4
4 5/8
1/2 (TYP)
1/4
7/8
1 1/16
1/8 RAD
5/16 RAD
1/4 RAD (TYP)
1 7/8
1 1/4
C
1 9/32
1/4
8 9/32
2 3/4
LDW 280-18206 -15
1/2
1/2
1/16 B.R.
1/8 RAD
5 EQ SPACES
-15 (REF)
5 3/16
5 1/4
4 7/8
1/4
1/2
1/4
1/2
1 7/16
1/2
3 1/2
1/4 RAD
-Z46.500 (REF)
4 EQ SPACES
45°
3/8
1/4 (TYP)
.004
B
C
A
.069-.074 (#50 DRILL) (11 HOLES)
LDW 280-18206 -19
2 1/8
LDW280-18206 -17
VIEW LOOKING UP
1/2
.004
1
X131.140 (REF)
VIEW C-C
18 7/8
-19 (REF)
5 5/16
7/8
1/16 BR (TYP)
-17 (REF)
X131.140 (REF)
17 13/16
1/2
-15 (REF)
1/4 RAD (TYP)
6
VIEW B-B

02/02 NAS 9-1100

C.L.	PART NO.	I&T	DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.
C	LDW 280-18206-15	E	COVER	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 x 6 x 7	NONE	88
C	LDW 280-18206-17	E	PLATE	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 x 7 x 7 1/2	NONE	88
C	LDW 280-18206-19	E	PLATE	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 x 15 x 23	NONE	88

C.L. = CLEANLINESS LEVEL PER LSP14-0011

LM	LDW280-51642	LM-2(32) THRU LM-15(45)	1 EA
MODEL	NEXT ASSY	MODULE	REQ'D/MOD
PART NO. LDW 280-18206-15, -17, -19			

2

DETAIL SPEC REQD		CLASS II ENGRG CHG	√	CLASS I ENGRG CHG
CONTROL INFO NO.	LDW 280 A-432+			

REASON FOR EO	DESCRIPTION OF EO	GRUMMAN EO RELEASE
ADDITIONAL METEOROID PROTECTION REQD FOR S/C He TANK	CREATED LDW280-18206-15, -17, -19 (1 EA REQD/MOD) N/A LDW280-51642 EFF. LM 2(32) THRU LM15(45)	① 4 UE 12/17

MODEL	EFFECTIVITY PROCURING ACT. NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM 2(32) THRU	
		LM 15 (45)	
			—

DRAWING REVISION REQD		DISPOSITION OF PARTS		BY / DATE								
√		Not REQ'D		12/14/66				12-15-66		12-15-66		
REVISE DWG	RECORD EO	REWORK	SCRAP	5 VDI	~~SUPPORT~~	RELIAB GROUP	~~GROUP~~ LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	~~GOVT~~	

PRIORITY	DRAWING TITLE	ENGINEERING ORDER DRAWING NO.	EO NO.
C	CLAMP D/S QUAD III - LWR METEOROID PROTECTION	LDW 280-18206	B1

V.A. CHRISTINA
ISSUED BY J. STRAKOSCH SECTION V DI X1153 GROUP NO. 335 PL 35

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32 3 REV 3-66

E-F-4

ENG 32.1 REV 3-65

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-18206
EO NO. B3
CONTROL INFO NO. LDW280A-5069

DELETE LDW280-18206-13 FROM LM-1(31) THRU LM-15(45) EFF

ADD LM-1(31) EFF TO LDW280-18206-21 CLAMP (4 REQD/MOD)
N/A LDW280-51642

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: PART NOT NEEDED & CLAMP REQ'D FOR SHIELD SUPPORT

DESCRIPTION OF EO: ADDED LM-1(31) EFF TO -21 (4 REQD/MOD) N/A LDW280-51642
DELETED -13

GAEC EO RELEASE: C 1/20/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-13

APPROVED BY								
DATE	1/20/67			1/20/67	1/20/67		1/20/67	1/20/67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: CLAMP D/S QUAD III LWR-METEOROID PROTECTION

DRAWING NO. LDW280-18206

EO NO. B3

ISSUED BY V.A. CHRISTINA/J. STRAKOSCH SECTION VDI X1392 GROUP NO. 335 PL 35

01 NAS 9-1100

THIS IS AN
ORIGINAL E.O.

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1523
CONTROL INFO NO. LDW280B 8107

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18190 ✓	SEE DWG	D2
195 ✓		C4
196 ✓		B3
197 ✓		B4
198 ✓		B3
199 ✓		B3
200 ✓		B3
201 ✓		B5
206 ✓		B5
LDW280-18223	SEE DWG	B4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 28 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: ⓪ 8-6-69; JK 8/9/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP

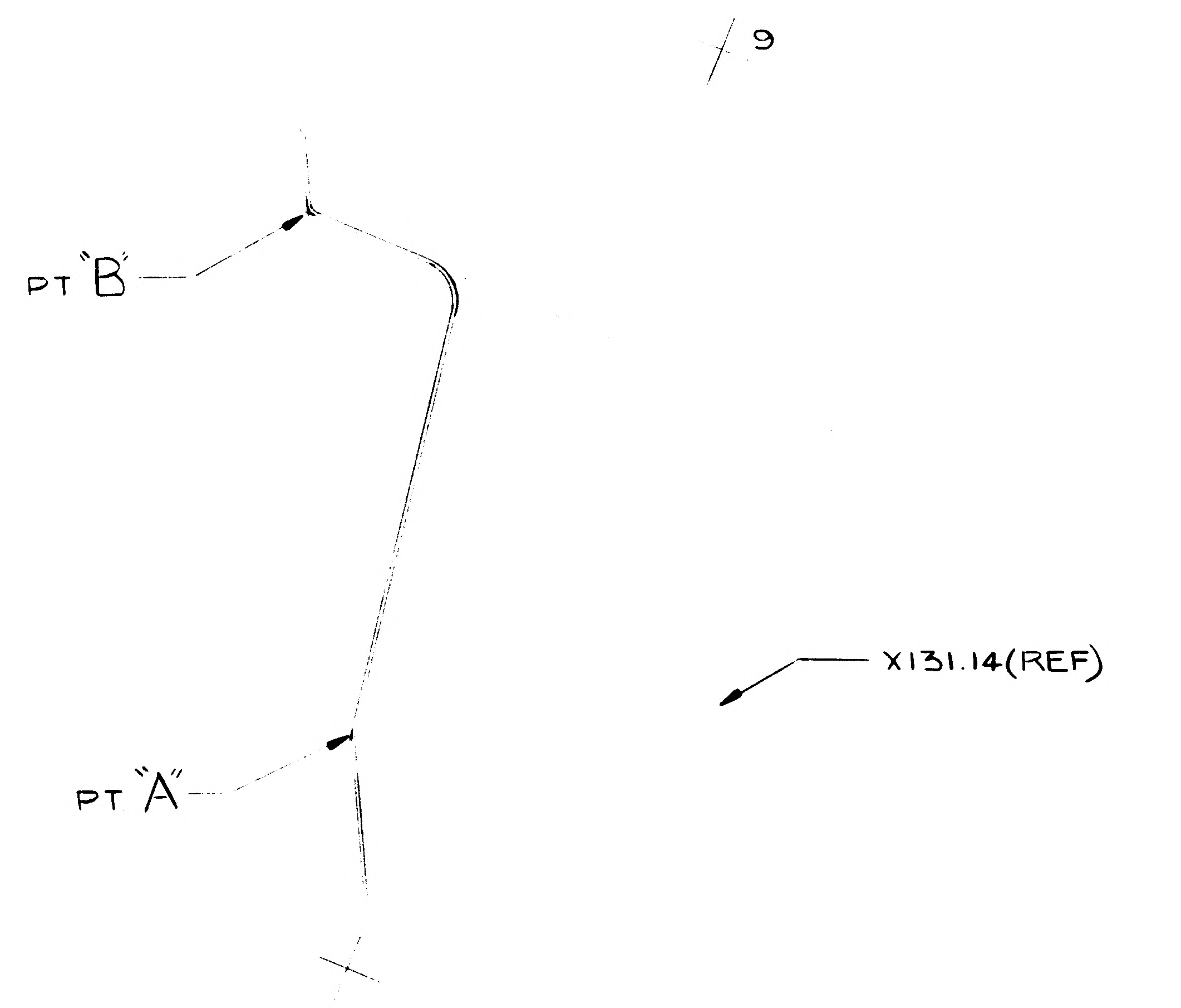
APPROVED BY	PJT				M			Bauman
DATE	7-29-69			7/29/69	8-7-69		8/7/69	8/8/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C.	SEE DRAWINGS	LEO 280	1523

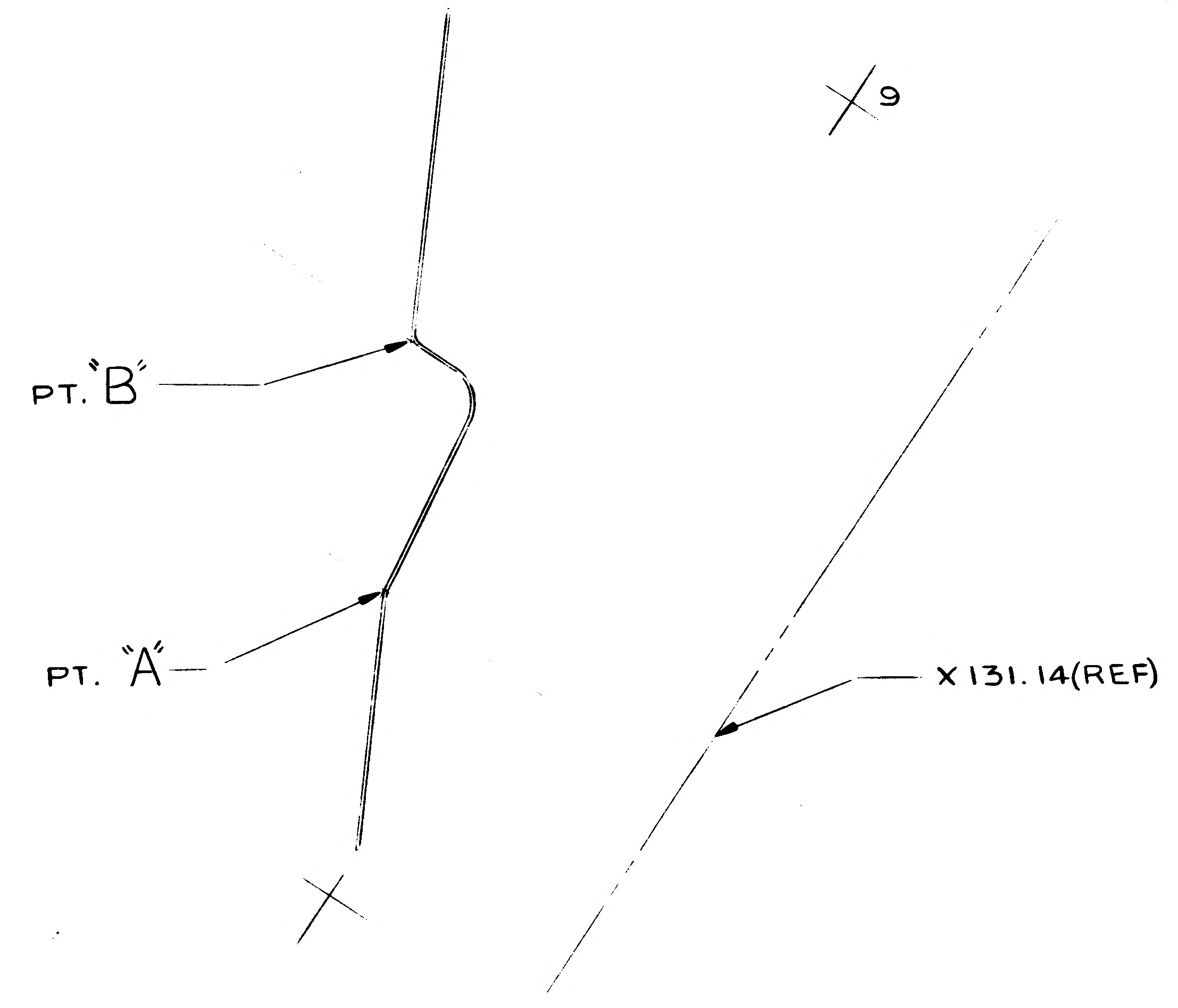
8-22-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100



SECTION C-C
ZONE 7A

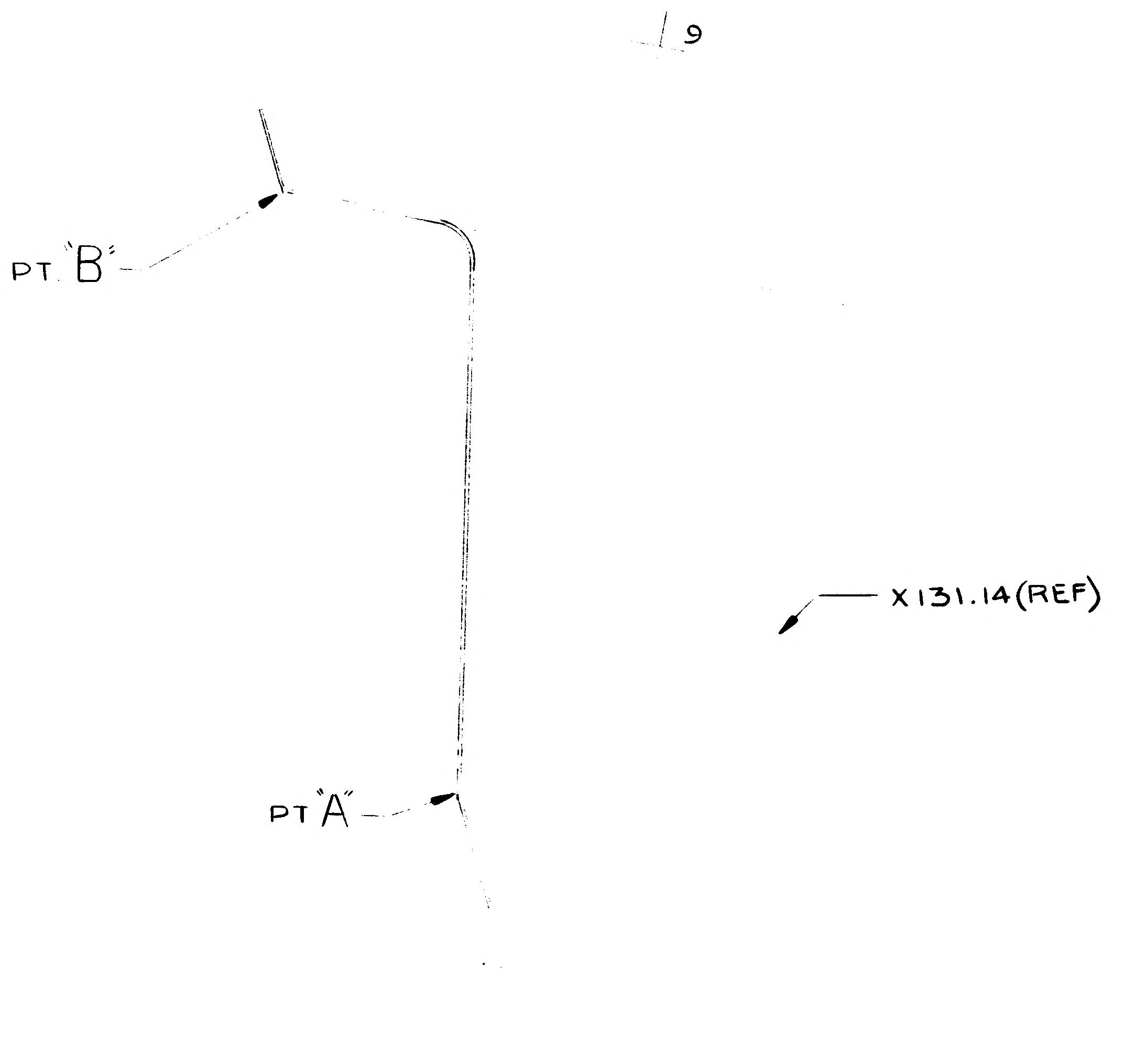


SECTION E-E
ZONE 7 B

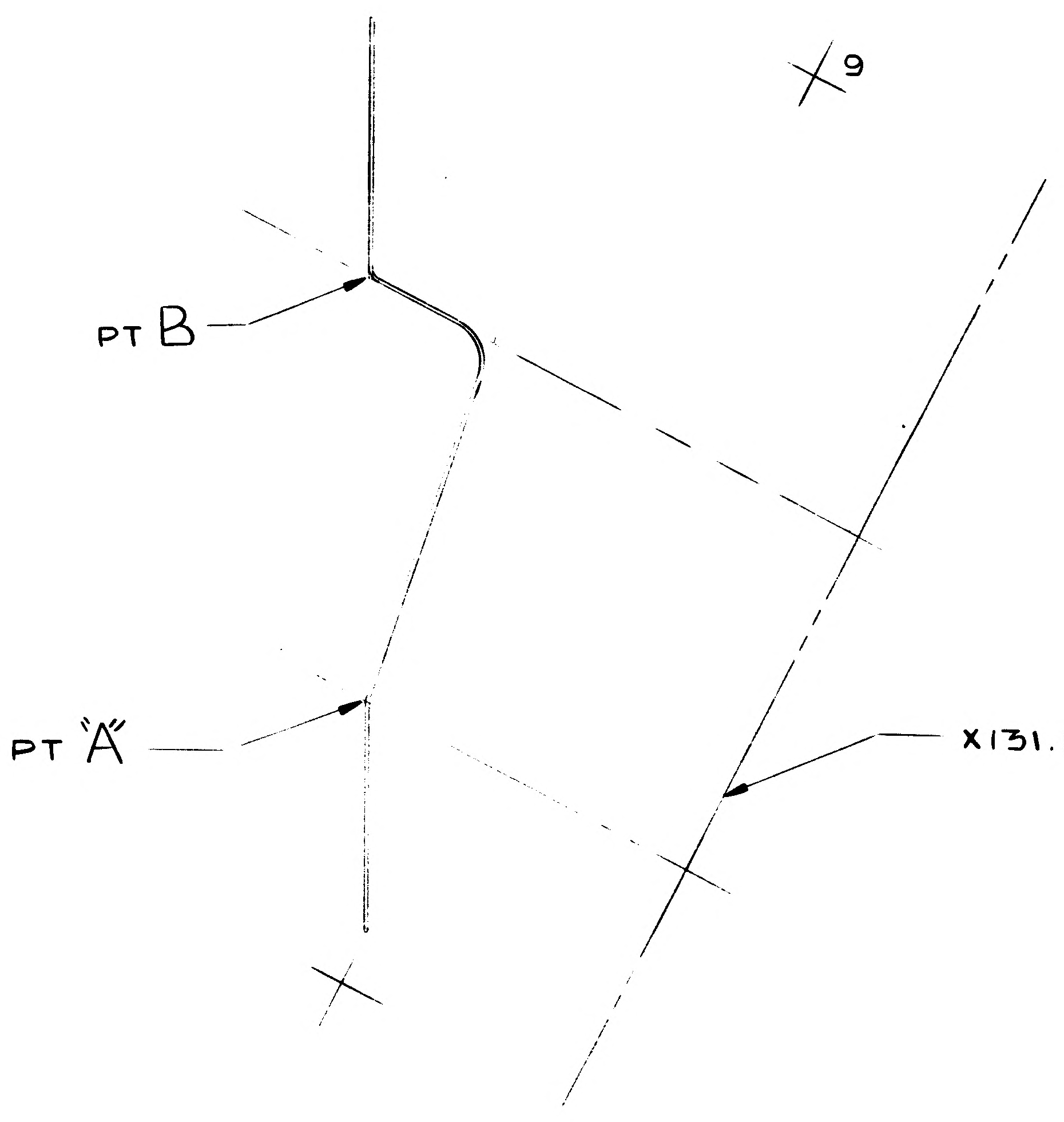
9

X131.14 (REF)

ON F-F
7B



SECTION B-B
ZONE 7A



SECTION D-D
ZONE 7A

LDW280-18207 SH 3

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R · .010 .063R TO .250R · .015 OVER .250R · .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF · .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS · 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 28x
PRINTING INFO ONLY
FULL SIZE SHEET AREA (30x) SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) SQ. FT.
PRINT TRIM LINE

D C B A

LDW280-182C7 A

LDW280-18207

02/02 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK				
LM	SIZE H	CODE IDENT NO. 26512	LDW280-18207		A
MODEL OR END ITEM	SCALE FULL			SHEET 3	

FOR PHOTO REPRODUCTION 2FR K2

ENG 73-6 6-64

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A		00-101 00&3.00						E.O. A1	INITIAL DWG RELEASE PARTS MADE PER E.O.	LM-4 THR LM-15	NOT	REQD	LITVINOFF 12-13-66		
								EO A2	ADDED -13: REMOVED-11 FROMFLD. B/M & MOD/BLK	LM-4 THRU LM-15		-11	EG	RMC	

CHG APPROVED											
LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
A		12/20	12/21/66								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18207	A
SCALE NONE		SHEET 1.01	

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18207 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54700	LM-15 (45)	6
		LM-14 (44)	6
		LM-13 (43)	6
		LM-12 (42)	6
		LM-11 (41)	6
		LM-10 (40)	6
		LM-9 (39)	6
		LM-8 (38)	6
		LM-7 (37)	6
		LM-6 (36)	6
		LM-5 (35)	6
LM	LDW280-54700	LM-4 (34)	6

PART NO. LDW280-18207-13

GAEC SCH NO. 52

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED F-F

LAST DASH NO. USED -11

GRUMMAN REL INFO A

PRIM NO. LE(001) 207 MP-14 A12-27-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY	A.LITVINOFF 12-13-66	RELIABILITY	
LAYOUT BY	G.BARNES		
CHECKED BY	EG 12-19-66		
~~GR LEADER~~			
VEH DES INT	12/21/66		
STRUCTURES	J.B. 12/21/66	PROJ ENGR	R M Carbee (EJ) 12-22-66
STRUCTURES	FB 12/22	REL GROUP	12/22/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD
DESCENT STAGE - PROP TANK
METEOROID WEB

SIZE B

CODE IDENT NO. 26512

LDW280-18207 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77 1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY										PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
									6	LDW280-18207-13	E		SHIELD	AL ALLOY SH	QQ-A-250/11	6061	.025 X 15 X 30	T4	76	6A

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						76	ALODINE	LSP-14-9010
						T4	AL HT TR	MIL-H-6088

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18207	A

SCALE NONE

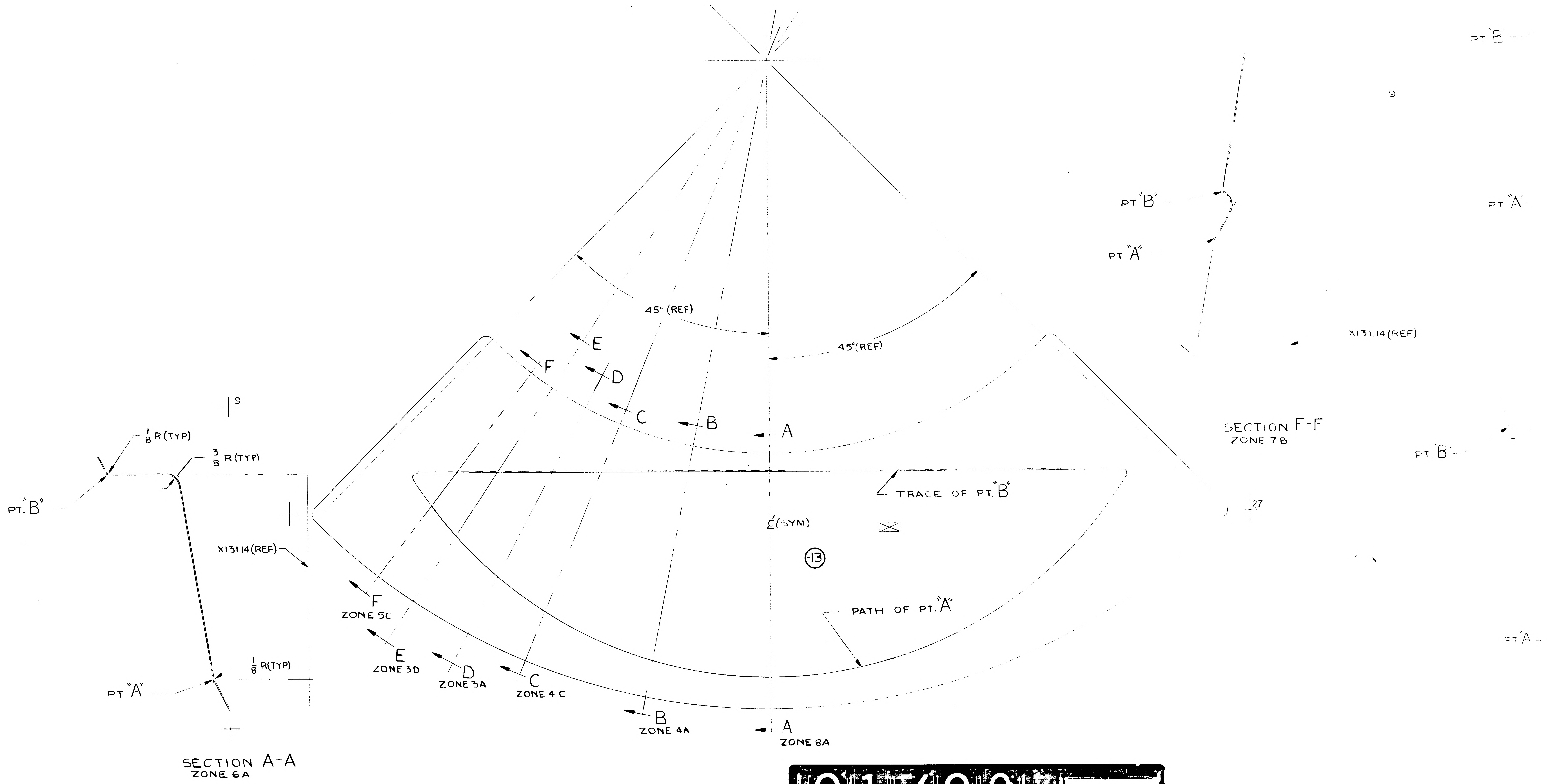
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

LDW280-18207 SH3

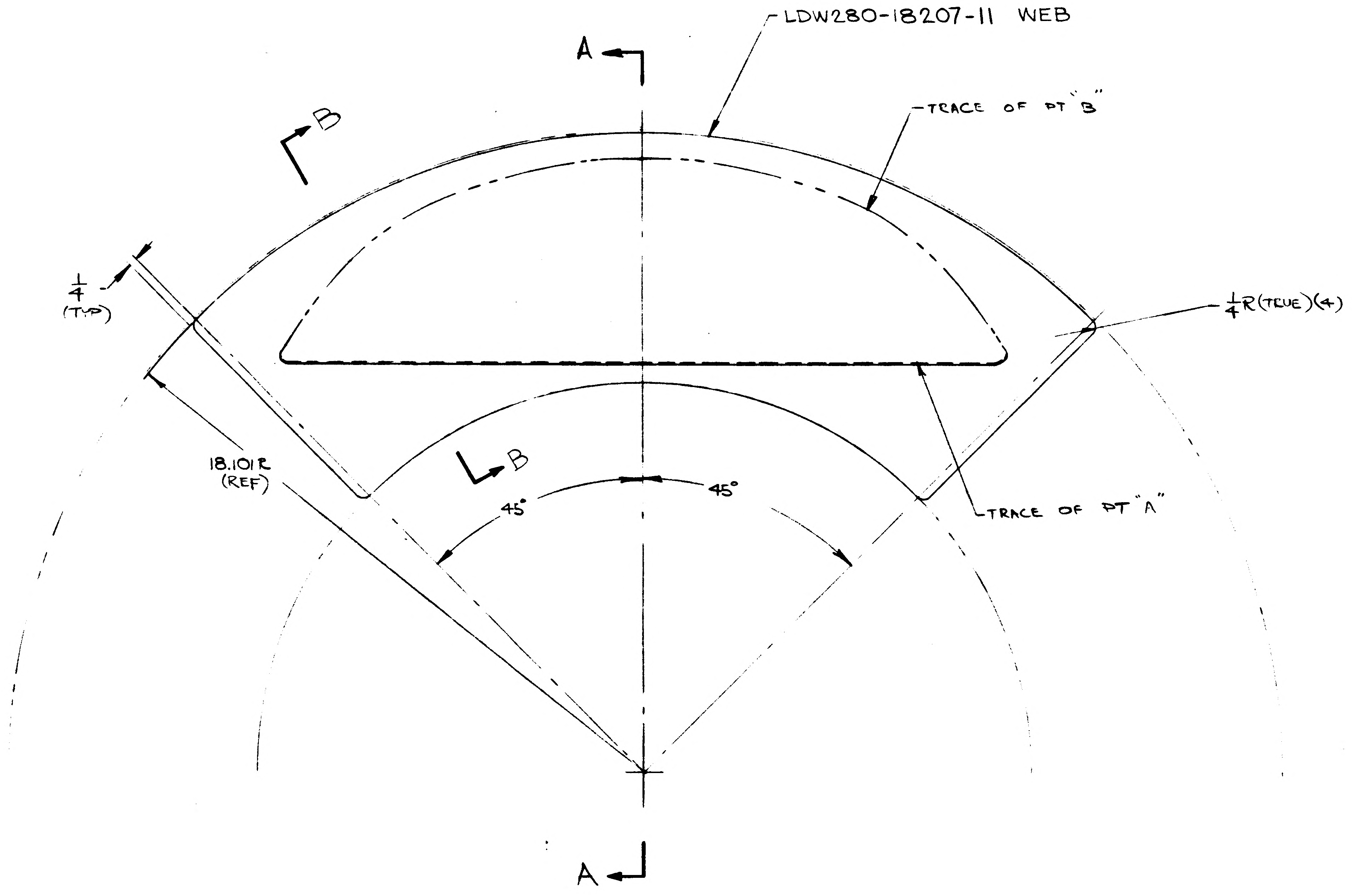


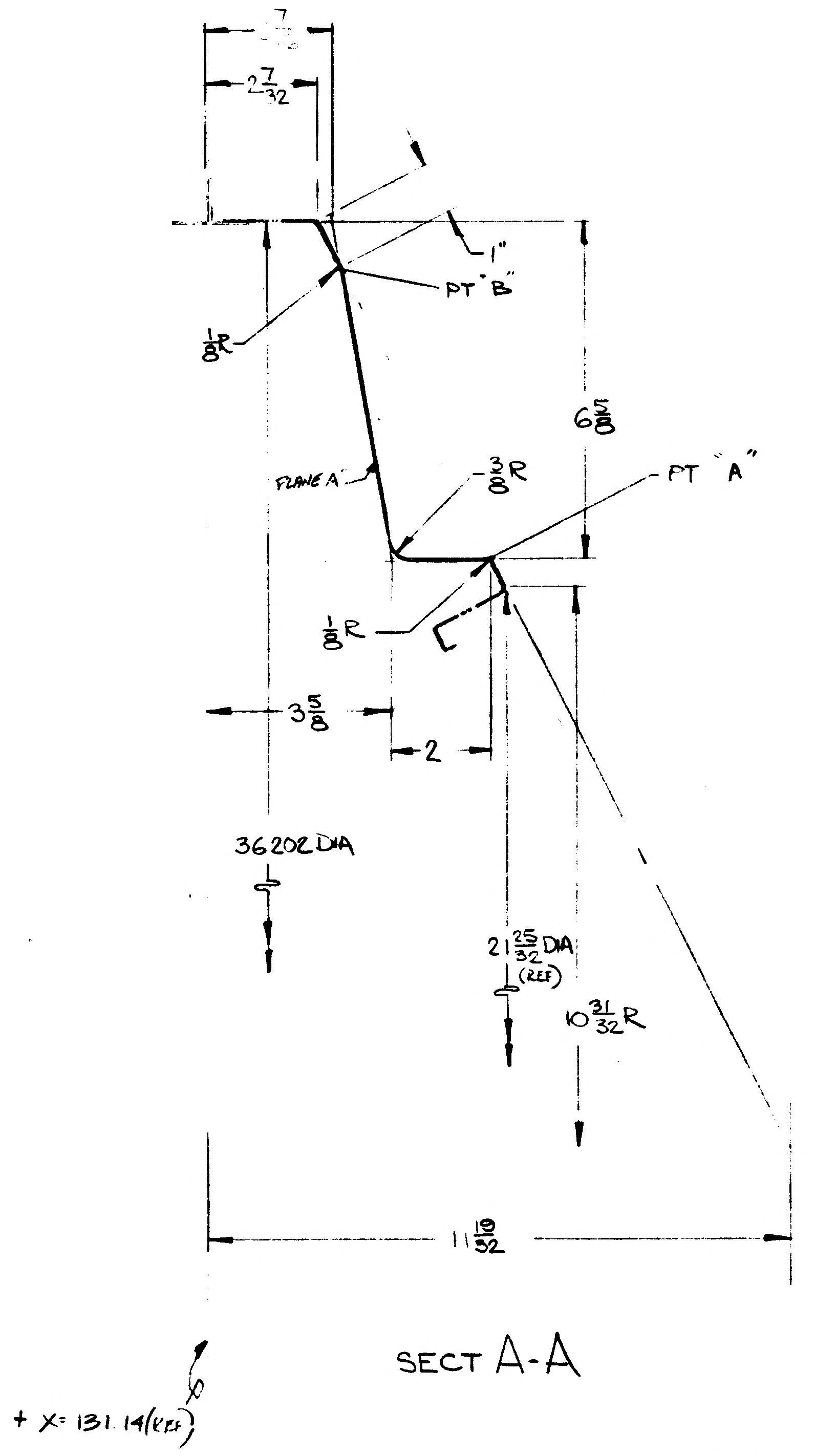
45° (REF)
45°(REF)
E
F
D
C
B
A
F
ZONE 5C
E
ZONE 3D
D
ZONE 3A
C
ZONE 4 C
B
ZONE 4A
A
ZONE 8A
TRACE OF PT."B"
℄(SYM)
13
PATH OF PT."A"
9
-1/8 R(TYP)
3/8 R(TYP)
PT."B"
X131.14(REF)
1/8 R(TYP)
PT "A"
SECTION A-A
ZONE 6A
PT "B"
PT "A"
X131.14 (REF)
SECTION F-F
ZONE 7B
27
PT "B"
PT "A"
PT "B"
PT "A"

01/02

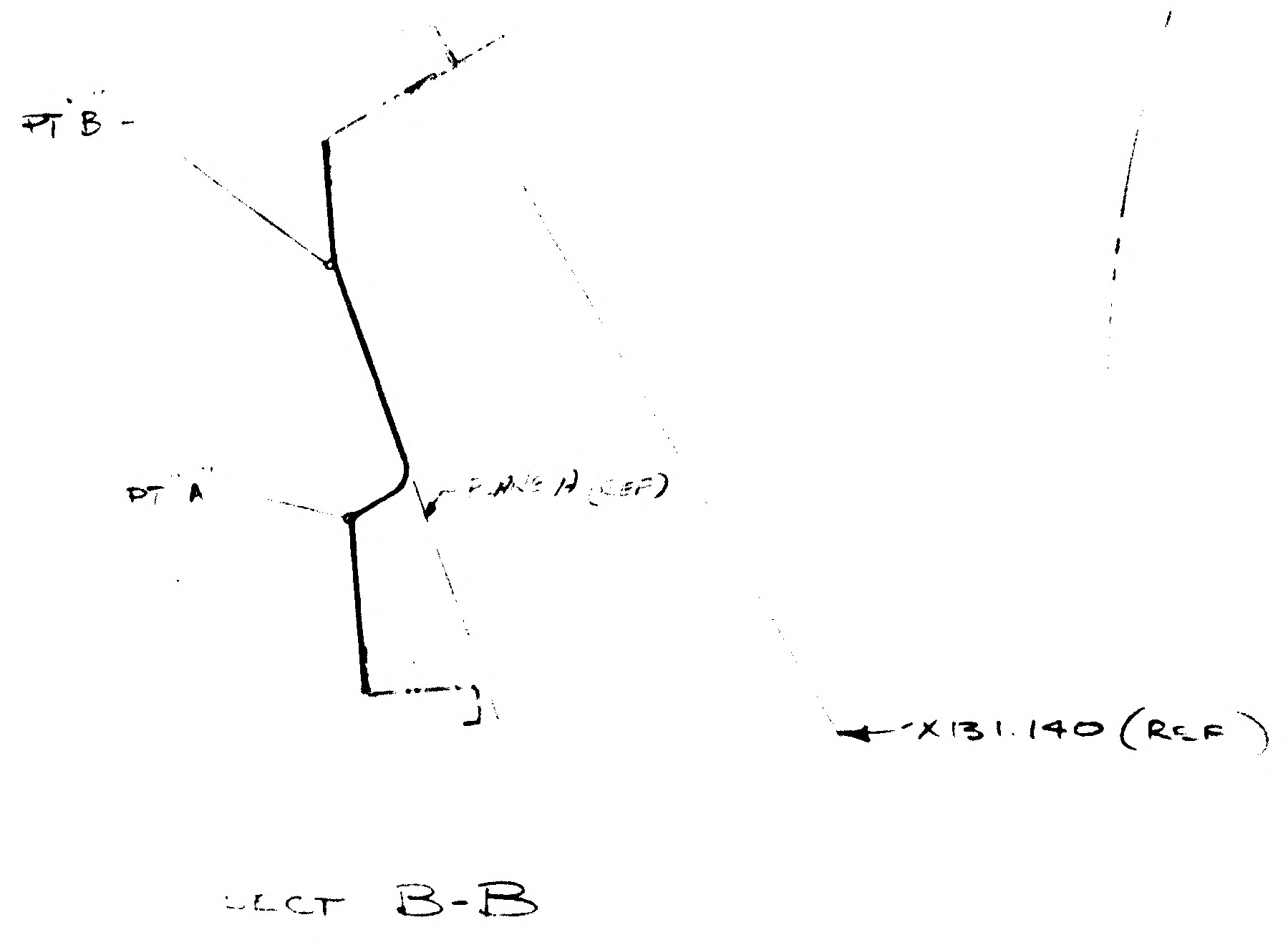
NAS 9-1100

LDW280-18207 SH 3


LDW280-18207-11 WEB
A
TRACE OF PT "B"
B
¼ (TYP)
¼R (TRUE) (4)
18.101R (REF)
B
45°
45°
TRACE OF PT "A"
A


2 7/32
1"
PT "B"
⅛R
6⅝
⅜R
FLANGE "A"
PT "A"
⅛R
3⅝
2
36.202 DIA
21 25/32 DIA (REF)
10 31/32 R
11 19/32
+ X= 131.14 (REF)

SECT A-A


PT B
PT A
FLANGE (TYP)
X=131.140 (REF)

SECT B-B

01 NAS 9-1100

LDW280-18207-11 WEB
.025 AL ALY SH
2024 QQ-A-250/4
HT TO T42 COND
FIN 76
N/A LDW280-54700
EFF: LM-4(34) THRU LM-15(45) S/MOD
I & T= E

DWG TOL DEC ±.010 ANG ±½° FRAC ±1/32

* DRAWING NOT MADE

(2)

DETAIL SPEC REQD ☐ CLASS II ENGRG CHG ☐ CLASS I ENGRG CHG ☐

CONTROL INFO NO. LDW280-18200

REASON FOR EO: INTERFERENCE WITH PROPELLANT LINE STRUCTURE

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

GRUMMAN EO RELEASE

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	LM-15(45)

DRAWING REVISION REQD: * REVISE DWG

DISPOSITION OF PARTS: NOT REWORK; REQD SCRAP

DATE 11/3/66 — S VDI

GROUP LEADER 11/22/66 — STRESS GROUP — LIAISON ENGRG — PROJ ENGR — GOV'T 11-29-66

SUPPORT — RELIAB GROUP

PRIORITY: C

DRAWING TITLE: SHIELD DESCENT STAGE- PROP TANK METEOROID WEB

ENGINEERING ORDER

DRAWING NO. LDW280-18207 EO NO. A1

G. BARNES/J. STRAKOSCH X1392 VDI 335 35

ISSUED BY — SECTION — GROUP NO. — PL

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32.3 REV 3-66

CDR 12/2/66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18207
EO NO. A2
CONTROL INFO NO. LDW280A4416

ADD LDW280-18207-13 IDENT TO LDW280-18207-11
EXCEPT THAT MATL IS 6061 QQ-A-250/11
.025 THK AL ALY SH HT TO T4 COND MIL-H-6088
(WAS 2024, QQ-A-250/4 HT TO T42 COND)
REMOVE -11 FROM F/D, B/M & MOD/BLK

(SHOP INFO: CRYOGENIC QUENCH TO T4 IN LIQUID N_2
AS GOVERNED BY LEM 520-4 APPLIES FOR THIS
PART)

REMOVE $2\frac{7}{16}$ DIM FROM F/D
-13 IS EFF ON LM-4(34) THRU LM-15(45) N/A LDW280-54700
6/MOD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: USE OF 2024 MATL CAUSES WRINKLES IN FORMED PART
SHOP REQUEST

DESCRIPTION OF EO: ADDED -13; REMOVED -11 FROM F/D, B/M & MOD/BLK

GAEC EO RELEASE: FR 12/16/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	LM-15(45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓			-11	DATE	12/1/66				12/15/66		12-15-66	12-15-66
REVISE DWG	RECORD EO	REWORK	SCRAP	3	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DESCENT STAGE - PROP TANK SHIELD METEOROID WEB	LDW280-18207	A2

ISSUED BY G. BARNES / J. STRAKOSCH X1392 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-66

DWG. NO. LEO 280
EO NO. 1365
CONTROL INFO NO. LDW_30B 7424

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280-18195	C1	SEE DWG
✓ -18196	B2	
✓ -18197	B3	
✓ -18198	B2	
✓ -18199	B2	
✓ -18200	B2	
✓ -18201	B4	
✓ -18202	B5	
✓ -18206	B4	
✓ LDW280-18207	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: 4/1/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG	GOVT
APPROVED BY				PGT	NJH			
DATE	4/1/69			4-2-69	4/8/69		4/9/69	4/9/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1365

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH. DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1648
TROL INFO NO. LDW280B7778

REMOVE LM-10(40) THRU LM-14(44) EFFECTIVITY FROM ALL DASH NO.S OF THE FOLLOWING DWGS WHICH HAVE LM-10(40) EFFECTIVITY WITH LDW280-54700 N/A -

DWG	TITLE	CHANGE NO.
LDW280-54700-*	SEE DWG	C5
-18656		A5
-17863		D1
-17864		C6
-18207		B2
LDW280-17862		C5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ LCD 3890 PKG 59 PG 1

(5)

REASON FOR EO: REDESIGN METEROID SHIELD FOR LARGER TANKS

DESCRIPTION OF EO: RESTRICTED (-*) BY REMOVING LM-10(40) THRU LM-14(44) EFF.

GAEC EO RELEASE: SALB 8-25-69; JK 8/28/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40) THRU LM-14(44)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	8-19-69			8/18/69	8/19/69		8/19/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1648

9-29-69
ISSUED BY J. LANG / P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1						✓	EO.A1	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO. i.y.	LM-1	NOT	REQ'D	MAYBO 12-13-66 EG	12-21-66	12/21/6

CHG APPROVED											
LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHT	RELIABILITY					
A		12/20	12/21								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18209	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18209-1	E		TUBE	AL ALLOY TUBE	WW-T-700/3	2024-T3	.50 O.D.x.035x22	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18209	A

SCALE NONE SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

LDW280-18209 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51732	LM-1(31)	1
PART NO. LDW280-18209-1		GAEC SCH NO. 50-1	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —
LAST DASH NO. USED -1

GRUMMAN REL INFO A
PRIM NO. 301 VE(011) #IP-14 A-12-30-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY TOM MAYBO 12-13-66
RELIABILITY
LAYOUT BY J. EVAN
CHECKED BY EG 12-16-66
GR. LEADER
VEH DES INT
STRUCTURE 12/21/66
STRUCTURE EB 12/21
WEIGHT
PROJ ENGR 12/21
REL GROUP 12/21/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

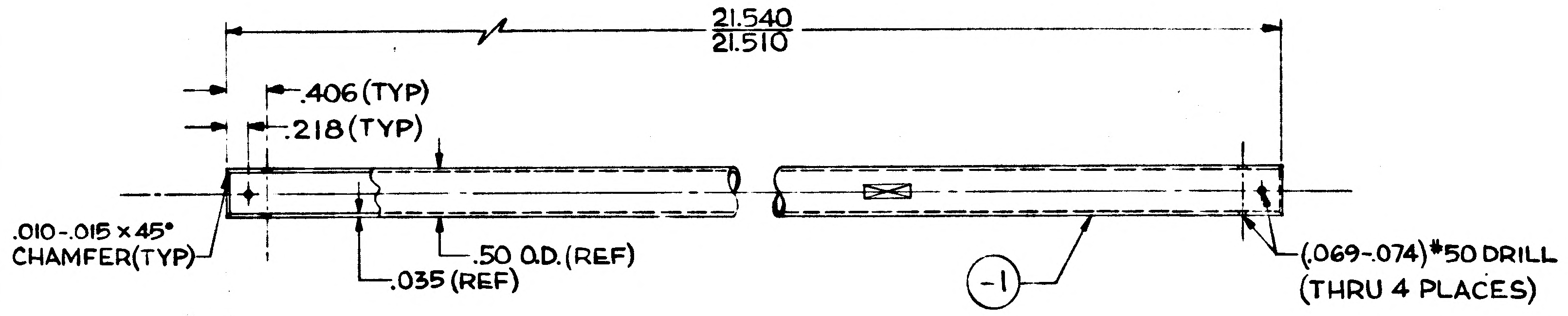
TUBE
DESCENT STAGE - GOX TANK
SIMULATOR

SIZE B
CODE IDENT NO. 26512
LDW280-18209 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77 1 12-65

01

NAS 9-1100



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. ~~BREAK ALL EDGES .015-.031~~	✓
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18209	A
SCALE FULL			SHEET 3.00	

LDW280-18209 A

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00, 3.00						EO A1 ①	EO A1 INITIAL DRAWING RELEASE PARTS MADE PER EO	NOTED	NOT REQD		P Como 12-9-66 RMS		

CHG APPROVED	LTR	~~GROUP LDR~~	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIAB					
	A		12/20	12/21								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18212	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18212 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25662	QUAL TEST(70)	6
PART NO. LDW280-18212-11		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25662	QUAL TEST(70)	2EA
PART NO. LDW280-18212-13 -15, -17, 19, 21, 23 & 25		GAEC SCH NO.	

2.

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A			
LAST DASH NO. USED	-25	PRIM NO.	VE(001)		
		207	MR-14	A-12-30	-6

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	P.COMO 12-16-66	RELIABILITY	
LAYOUT BY	V.A.CHRISTINA		
CHECKED BY	R.SMITH 12-19-66		
~~GR LDR~~			
VEH DES INT	12/20/66		
STRUCT	12/21/66	PROJ ENGR	12-21
STRUCT	12/21	REL GROUP	12/21/66
WEIGHTS			

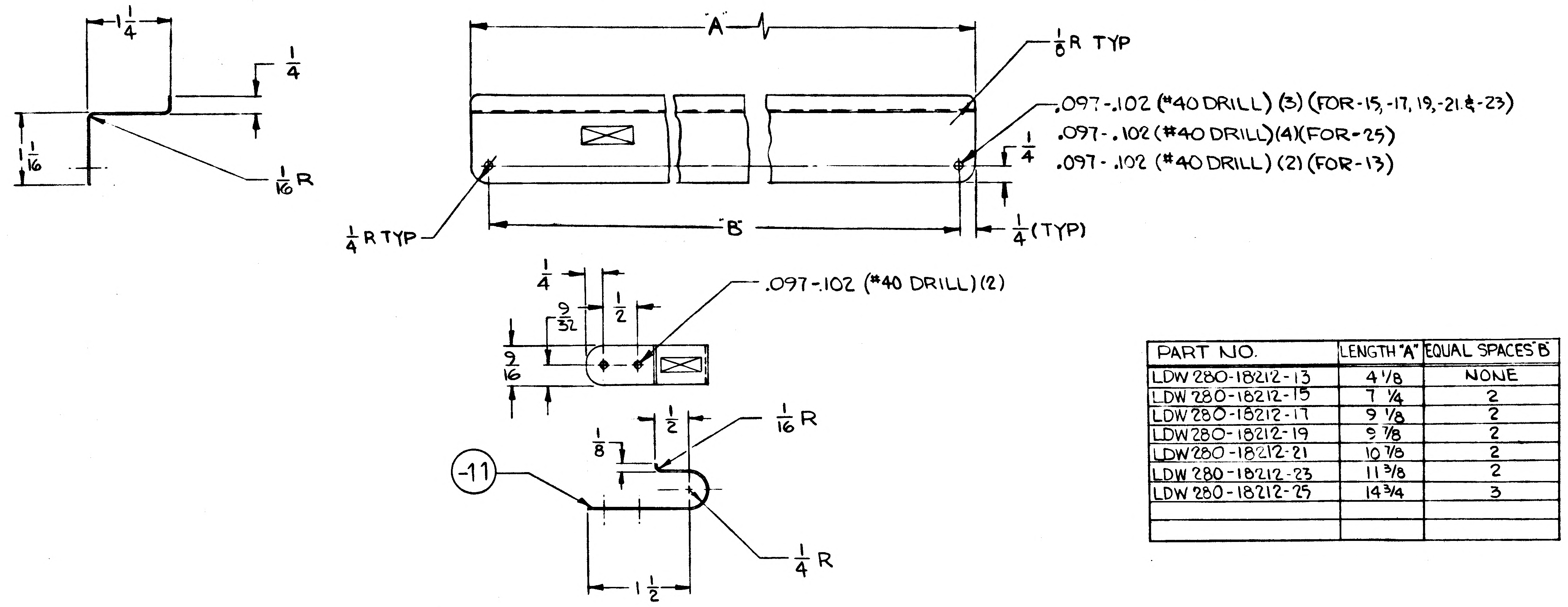
GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE REMOVABLE BASE
HEAT SHIELD BLANKET SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18212	A
SCALE	NONE	SHEET 1.00 OF 4	

01

NAS 9 - 1100


$1\frac{1}{4}$
$\frac{1}{4}$
$1\frac{1}{16}$
$\frac{1}{16}$R
"A"
$\frac{1}{8}$R TYP
.097-.102 (#40 DRILL) (3) (FOR-15, -17, 19, -21 & -23)
.097-.102 (#40 DRILL)(4)(FOR-25)
.097-.102 (#40 DRILL) (2) (FOR-13)
$\frac{1}{4}$
$\frac{1}{4}$R TYP
"B"
$\frac{1}{4}$(TYP)
$\frac{1}{4}$
$\frac{9}{32}$
$\frac{1}{2}$
.097-.102 (#40 DRILL)(2)
$\frac{9}{16}$
$\frac{1}{8}$
$\frac{1}{2}$
$\frac{1}{16}$R
-11
$\frac{1}{4}$R
$1\frac{1}{2}$

PART NO.	LENGTH "A"	EQUAL SPACES "B"
LDW 280-18212-13	4 1/8	NONE
LDW 280-18212-15	7 1/4	2
LDW 280-18212-17	9 1/8	2
LDW 280-18212-19	9 7/8	2
LDW 280-18212-21	10 7/8	2
LDW 280-18212-23	11 3/8	2
LDW 280-18212-25	14 3/4	3

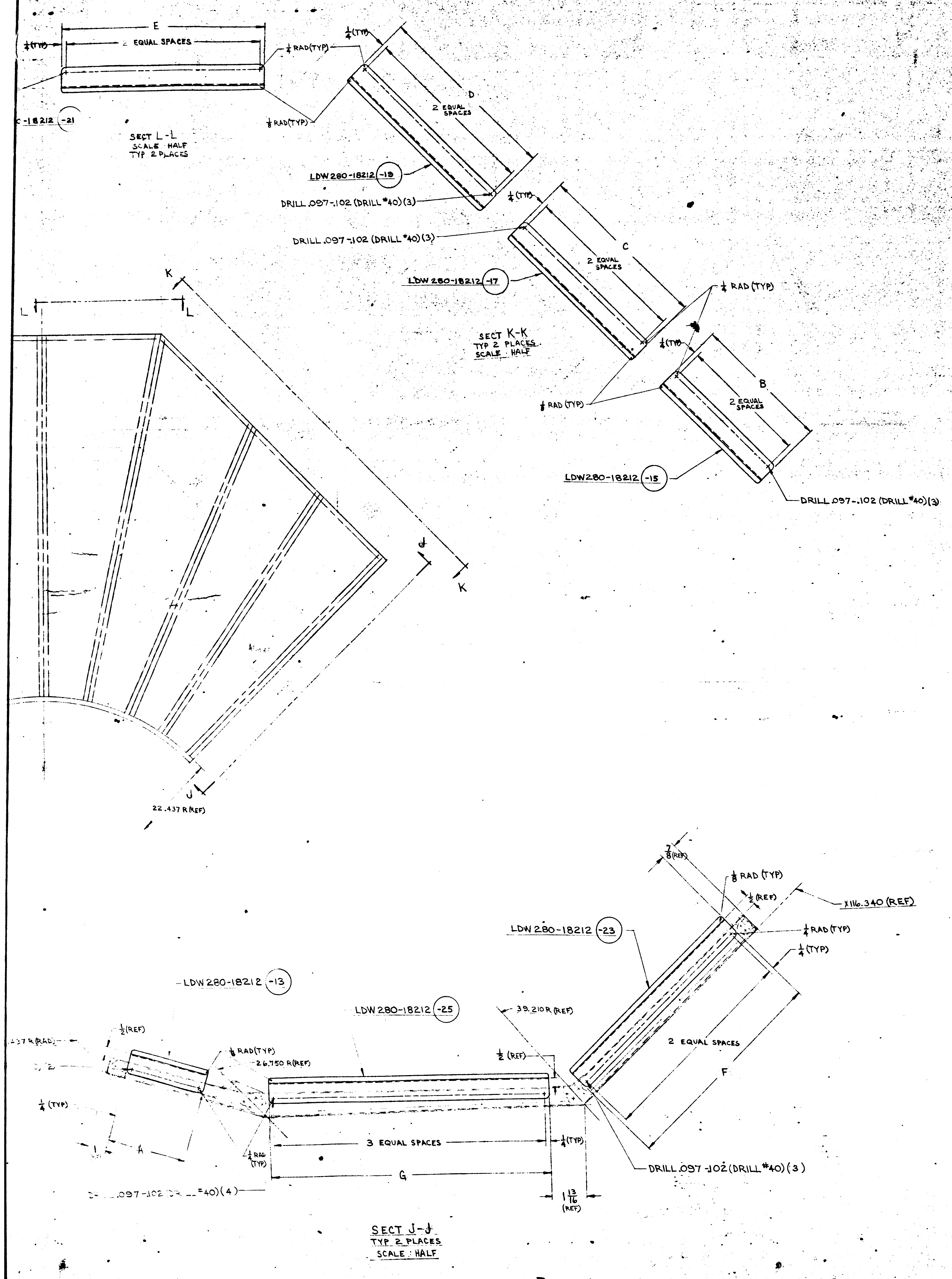
MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM	SIZE D	CODE IDENT NO. 26512	LDW280-18212	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

01 1 NAS 9-1100


E
2 EQUAL SPACES
¼(TYP)
⅛ RAD(TYP)
-18212 (-21)
SECT L-L
SCALE HALF
TYP 2 PLACES
D
2 EQUAL SPACES
LDW280-18212 (-19)
DRILL .097-.102 (DRILL #40)(3)
¼(TYP)
C
2 EQUAL SPACES
LDW280-18212 (-17)
⅛ RAD (TYP)
SECT K-K
TYP 2 PLACES
SCALE: HALF
B
2 EQUAL SPACES
LDW280-18212 (-15)
DRILL .097-.102 (DRILL #40)(3)
K
L
J
22.437 R(REF)
⅜(REF)
⅛ RAD (TYP)
½(REF)
X116.340 (REF)
LDW280-18212 (-23)
⅛ RAD (TYP)
¼(TYP)
LDW280-18212 (-13)
LDW280-18212 (-25)
39.210R (REF)
2 EQUAL SPACES
F
½(REF)
⅛ RAD(TYP)
26.750 R(REF)
½ (REF)
¼ (TYP)
A
3 EQUAL SPACES
G
⅛ RAD (TYP)
DRILL .097-.102 (DRILL #40)(3)
1 13/16 (REF)
.097-.102 DR (#40)(4)
SECT J-J
TYP 2 PLACES
SCALE: HALF

MANUFACTURING OPERATIC
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG

PART NUMBER ~~AND ALL OTHER MARKINGS IN REGION MARKED~~ USE BOTH SIDES IF NECESSARY.

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031 √

SYMBOL √ DENOTES SURFACE TO BE MACHINED

TOLERANCE ON FLANGES IS ± 1/32 √

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

PART NO.	LENGTH
LDW280-18212 -13	A = 4⅛
-15	B = 7¼
-17	C = 9⅛
-19	D = 9⅞
-21	E = 10⅞
-23	F = 11⅜
LDW28C-18212 -25	G = 14¾

NOTE:
1. ALL INFORMATION NOT REQ'D TO MANUFACTURE LDW280-18212-11,-13,-15,-17,-19,-21,-23 & -25 IS REFERENCE INFO ONLY

PART NO.	I&T	DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.
LDW280-18212-25	E	ANGLE	HR & CRES	MIL-S6721	TYPE 321 ANN	.018 x 3 x 15½	NONE	NONE
-23						.018 x 3 x 12¼		
-21						.018 x 3 x 11¾		
-19						.018 x 3 x 10¾		
-17						.018 x 3 x 10		
-15						.018 x 3 x 8		
-13		ANGLE				.018 x 3 x 5		
LDW280-18212-11	E	CLIP	HR & CRES	MIL-S6721	TYPE 321 ANN	.018 x 1 x 4	NONE	NONE

MODEL	NEXT ASSY	MODULE	REQD/MOD
LM	LDW280-25662	QUAL TEST(70)	6
PART NO. LDW280-18212 -11			

MODEL	NEXT ASSY	MODULE	REQD/MOD
LM	LDW280-25662	QUAL TEST (70)	2 EA
PART NO. LDW280-18212-13,-15,-17,-19,-21,-23,-25			

02/02 NAS 9-1100

CONTRACT NO. NAS-9-1100 LINE ITEM I
DOCUMENTATION TYPE II PRIM NO. 207

DRAWING NOT MADE

(2)

DETAIL SPEC REQD		CLASS II ENGRG CHG	√	CLASS I ENGRG CHG		CONTROL INFO NO. LDW280 A 3-99
REASON FOR EO: BLANKET EDGE SUPPORT FOR BASE HEAT SHIELD TEST			DESCRIPTION OF EO: E.O. A1 INITIAL DRAWING RELEASE, PARTS MADE PER E.O.			GRUMMAN EO RELEASE: 12/3/66

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		QUAL TEST (70)	

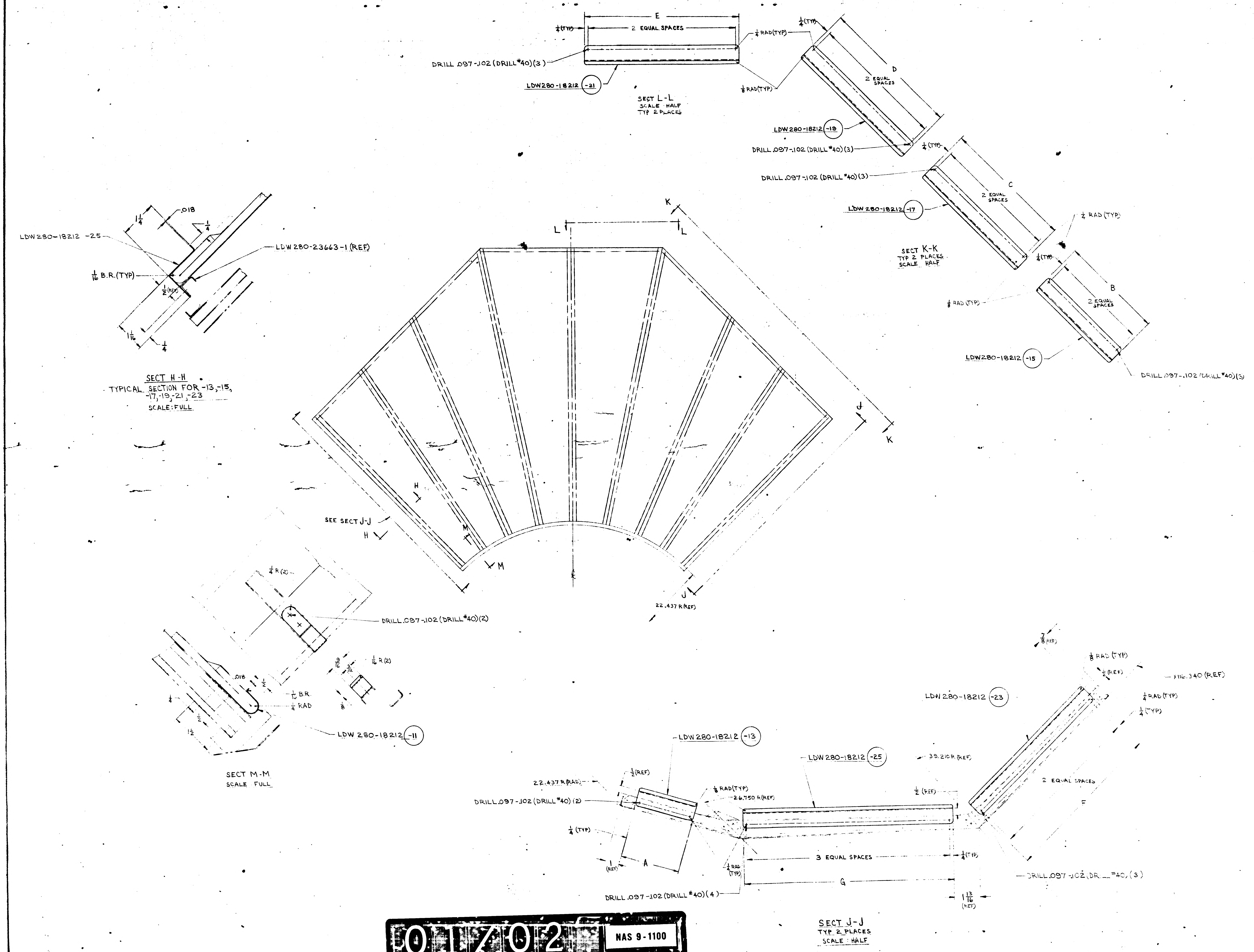
DRAWING REVISION REQD		DISPOSITION OF PARTS		BY / DATE		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	GOV'T
REVISE DWG: NOT REQD	RECORD EO	REWORK: NOT REQD	SCRAP	11/30/66	5 VDI				12/2/66		12-2-	-66

PRIORITY: C
DRAWING TITLE: CLIP D/S REMOVABLE BASE HEAT SHIELD BLANKET SUP'T
ENGINEERING ORDER
DRAWING NO. LDW280-18212
EO NO. A

V.A. CHRISTINA
ISSUED BY J. STRAKOSCH SECTION VDI x1153 GROUP NO. 335 PL 35
CODE IDENT NO. 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.
ENG 32.3 REV 3-65

THIS IS AN ORIGINAL DWG

C.D.R - 12/7/66


E
2 EQUAL SPACES
⅛(TYP)
⅛ RAD(TYP)
DRILL .097-.102 (DRILL #40)(3)
LDW280-18212 (-21)
SECT L-L
SCALE HALF
TYP 2 PLACES
¼(TYP)
D
2 EQUAL SPACES
⅛ RAD(TYP)
LDW280-18212 (-19)
DRILL .097-.102 (DRILL #40)(3)
¼(TYP)
DRILL .097-.102 (DRILL #40)(3)
C
2 EQUAL SPACES
LDW280-18212 (-17)
½ RAD (TYP)
SECT K-K
TYP 2 PLACES
SCALE HALF
¼(TYP)
B
2 EQUAL SPACES
⅛ RAD (TYP)
LDW280-18212 (-15)
DRILL .097-.102 (DRILL #40)(3)
K
L
L
K
J
K
1¼
.018
¼
LDW280-18212 -25
LDW 280-23663-1 (REF)
1/16 B.R.(TYP)
½(REF)
1 1/16
¼
SECT H-H
TYPICAL SECTION FOR -13, -15, -17, -19, -21, -23
SCALE: FULL
H
M
SEE SECT J-J
H
M
J
22.437 R(REF)
¼ R (2)
DRILL .097-.102 (DRILL #40)(2)
.018
½
1/16 B.R.
¼ RAD
¼
½
1½
9/16
3/32
1/16 R (2)
⅛
LDW 280-18212 (-11)
SECT M-M
SCALE FULL
7/8 (REF)
⅛ RAD (TYP)
½ (REF)
116.340 (REF)
LDW 280-18212 (-23)
¼ RAD (TYP)
¼ (TYP)
LDW 280-18212 (-13)
LDW 280-18212 (-25)
39.210 R (REF)
½ (REF)
22.437 R(RAD)
½(REF)
⅛ RAD(TYP)
26.750 R(REF)
DRILL .097-.102 (DRILL #40) (2)
¼ (TYP)
1 (REF)
A
⅛ RAD (TYP)
2 EQUAL SPACES
F
3 EQUAL SPACES
¼(TYP)
G
DRILL .097-.102 (DRILL #40) (3)
DRILL .097-.102 (DRILL #40) (4)
1 13/16 (REF)
SECT J-J
TYP 2 PLACES
SCALE : HALF

01/02 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00						EO A1	EO A1 ~ PARTS MADE PER E.O. INITIAL DRAWING RELEASE.	LM-2 THRU LM-15	NOT	REQD	JAEGGI 12/13/66		

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18219	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

01 NAS 9-1100

LDW280-18219 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23586	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
		LM-3(33)	1 EA
	LDW280-23586	LM-2(32)	1 EA

PART NO. LDW280-18219-13,-15,-17

GAEC SCH NO. 51-2

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO A

PRIM NO. 207 LE(001) MP-14 A-1-11-7 E.H.F

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY	N. JAEGGI 12/13/66
LAYOUT BY	
CHECKED BY	WCG H. RODALEWICZ 12-19-66
~~GR LDR~~	
VEH DES INT	J. Fiedler 1/7/67
STRUCTURE	WJH 1/9/67
STRUCTURE	FEP 1/9
WEIGHTS	

PROJ ENGR R.M. Rubel 1-9-67

REL GROUP 1/10/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE ~ SCIENTIFIC EQUIP
RH END CLOSURE JAMB

SIZE	CODE IDENT NO.		
B	26512	LDW280-18219	A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18219-17	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032 x 3 x 5	T6	88	
	LDW280-18219-15	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032 x 2 x 4	T6	88	
	LDW280-18219-13	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032 x 3 x 5	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18219	A

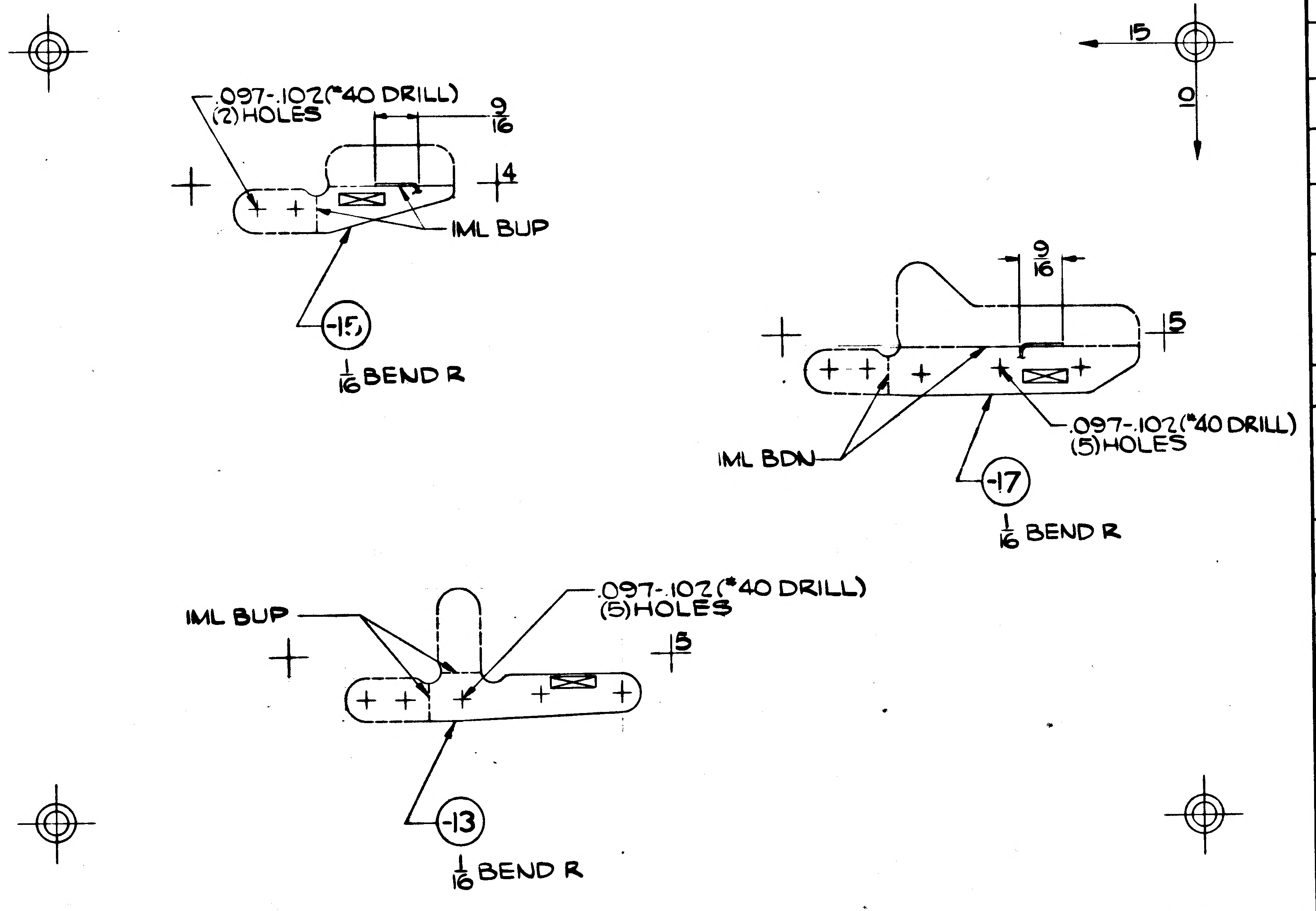
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100



MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18219	A
	SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1

K2

LDW280-18219 A

LDW280-18219 A

01

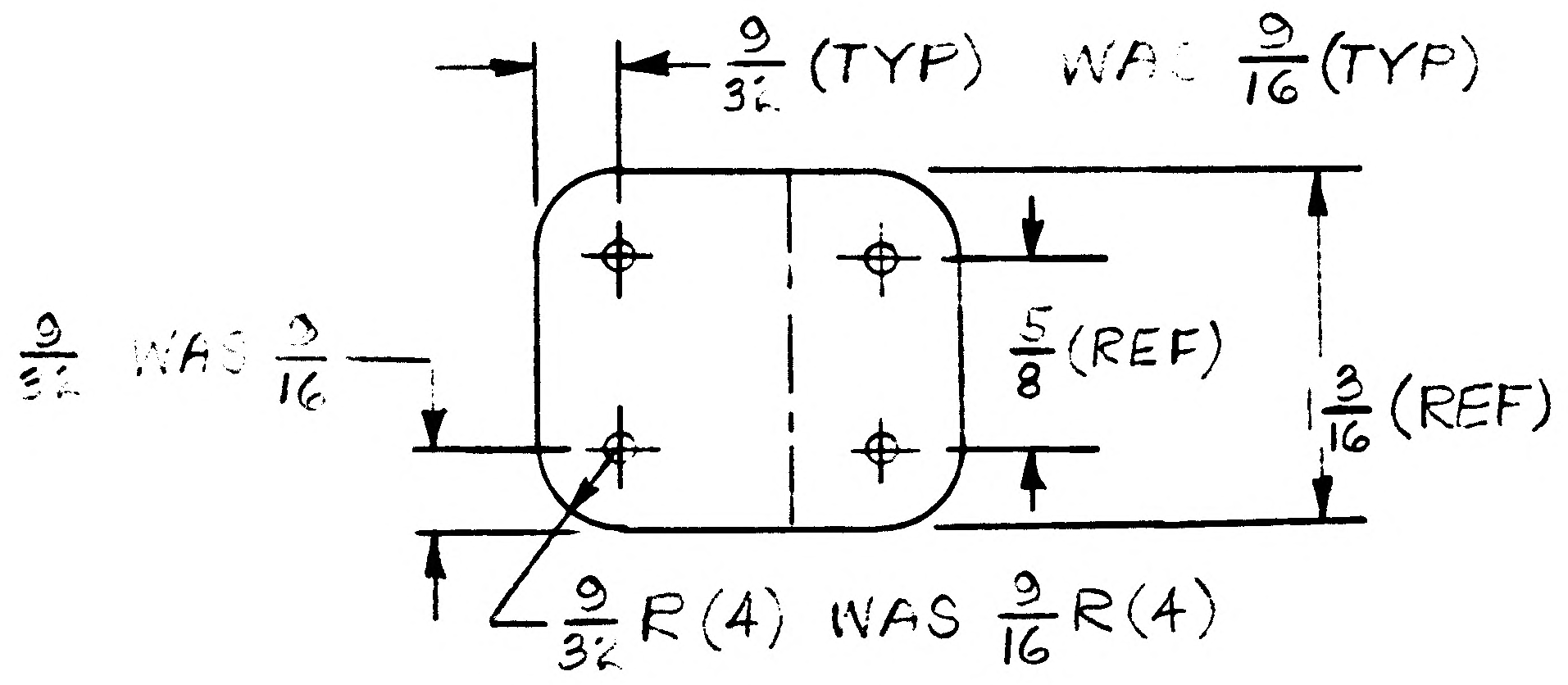
NAS 9-1100

4.G
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18219		EO NO. B2
CONTROL INFO NO.	LM-2-3168	

THIS IS A REVISION OF EO-B1



LDW280-18219-23

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO
① TO SUPPORT SEQ DOOR RET. STRAP
② INCORRECT DIMENSIONS - HOLES UNABLE TO BE ADDED

DESCRIPTION OF EO
REFERENCE EO-B1 IN FLD/DWG FOR -23,
9/32 R(4) WAS 9/16 R(4), 9/32 (TYP) WAS 9/16 (TYP); 9/32 WAS 9/16

GAEC EO RELEASE 020416

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
√		NOT	REQ'D	DATE					1/3/67	1/3/67		1/4/67
REVISE DWG	RECORD EO	REWORK	SCRAP	-6-	VSF	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	CLIP ~ DESCENT STAGE S.EQ. P.H. END CLOSURE	LDW280-18219	B2

ISSUED BY LIAISON J. MALONEY 12/30/66 x3604 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 440
CONTROL INFO NO. LDW280A-4581

TO THE FOLLOWING DRAWINGS REVISE MODEL BLOCK ADD:- N/A LDW280-52665 EFF. LM-2(32) THRU LM-15(45)

DRAWING NO	* DASH NO	TITLE	QUAN REQ'D	CHG. NO.
LDW280M17698	-11	WASHER, DESCENT STAGE~ PLUME IMPINGEMENT~HEAT SINK	49	B1
LDW280-18222	-11	BRACKET, D/S~QUAD II~SEQ UPR. PLUME. IMP. SHIELD SUPPORT	2	B1
LDW280P18218	-19	TUBE~D/S~QUAD II~SEQ~ ACCESS DOOR	2	B1
LDW280P17575	-11 & -13	WASHER~THERMAL SHIELD~ LOWER DECK~STANDOFF	13	A4
LDW280P17480	-17	STRAP~D/S~QUAD I~ BATTERY ACCESS	3	A4
LDW280-18110	-11	CHANNEL~D/S~QUAD II~ PLUME IMP. SHIELD STRAP LINK	1	A3
LDW280-18219	-21 & -23	CHANNEL~D/S~S.EQ. ACCESS DOOR YOKE SUPPORT	1	B3

2

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: ADDITIONAL PARTS REQUIRED

DESCRIPTION OF EO: REVISED MODEL BLOCK OF * ADDED N/A LDW280-52665 EFF.:- LM-2(32) THRU LM-15(45)

GAEC EO RELEASE: C 6 1/11/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
LM		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | REC'D E.
DISPOSITION OF PARTS: REWORK NOT | SCRAP REQ'D

APPROVED BY										
DATE	1/1/67	1/7/67				1/9/67		1-9-67	1/11/67
6	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG		PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 440

ISSUED BY F. MADDEN / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 35

01
NAS 9-1100

NO 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 711
CONTROL INFO NO. LDW280A8642

FOR THE FOLLOWING DRAWINGS (ALL DASH NO.*)
REMOVE LM-4(34) THRU LM-15(45) EFFECTIVITY

	DWG N°	CHG NO.	TITLE
✓	LDW280-23566	B6	SEE DWG
✓	LDW280-23569	B7	
✓	LDW280-23575	C4	
✓	LDW280-23576	D1	
✓	LDW280-23577	B2	
✓	LDW280-23586	B8	
✓	LDW280-23593	B4	
✓	LDW280M17272	B3	
✓	LDW280M17606	B7	
✓	LDW280M17607	B2	
✓	LDW280M17700	B3	
✓	LDW280M17268	C3	
✓	LDW280M17625	B2	
✓	LDW280M17626	B4	
✓	LDW280M17605	B1	
✓	LDW280-17291	B3	
✓	LDW280-17711	C4	
✓	LDW280-17290	B3	
✓	LDW280-17289	C3	
✓	LDW280-17879	B1	
✓	LDW280-17739	B10	
✓	LDW280-17881	B1	
✓	LDW280-18219	B4	
✓	LDW280-17891	A4	
✓	LDW280-17708	B3	SEE DWG

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCQ 1433 CCA 586 3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REDESIGN FOR ALSEP	ON-* REMOVED LM-4(34) THRU LM-15(45) EFFECTIVITY	JK 9/13/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓			✓	DATE	9/11/67			9/11/67	9/12/67	9/14/67	9-13-67
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	711

9/20
ISSUED BY F MADDEN / J. STRAKOSCH SECTION VEHICLE DESIGN INT GROUP NO. 335 PL 25

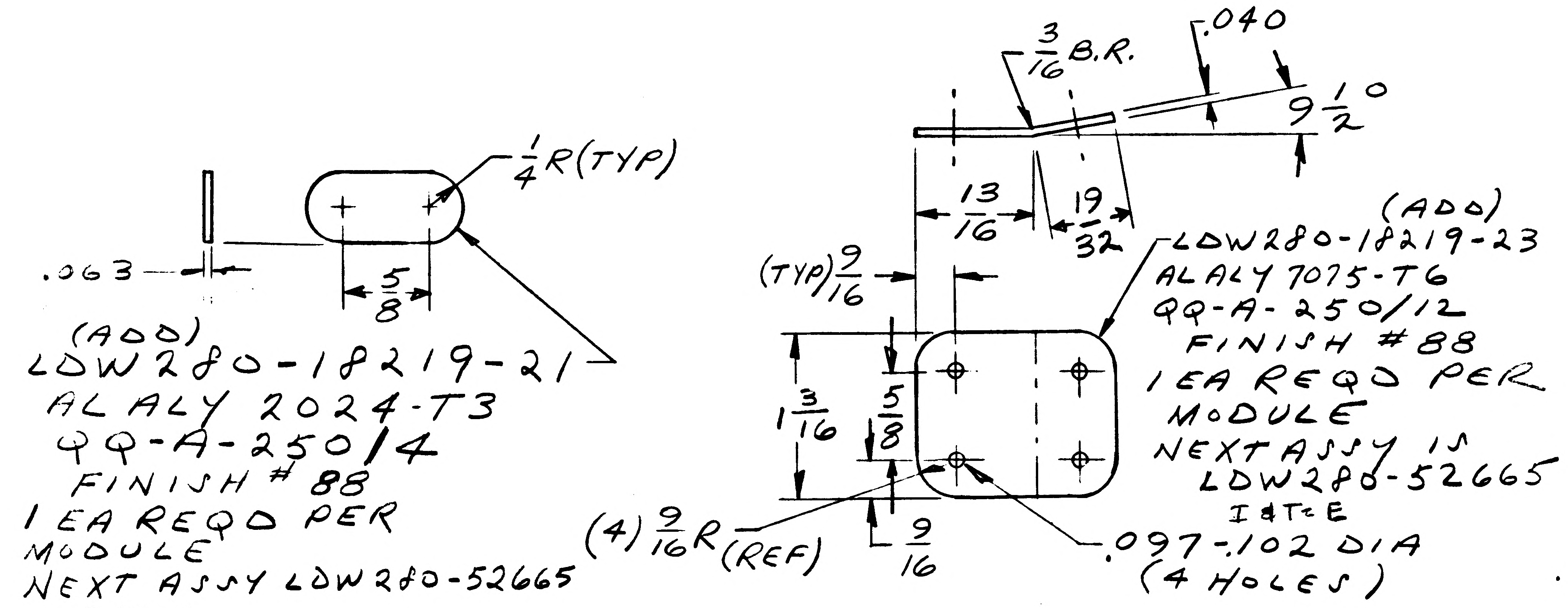
01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER CMF-A

DWG. NO. LDW280-18219		EO NO. B1	
CONTROL INFO NO. LDW280 A-4202			

ADD NEW PARTS -21 & -23 AS DESCRIBED BELOW;



$\frac{1}{4}$R (TYP)
.063
$\frac{5}{8}$
(ADD)
LDW280-18219-21
AL ALY 2024-T3
QQ-A-250/4
FINISH # 88
1 EA REQD PER
MODULE
NEXT ASSY LDW280-52665
I&T=E
$\frac{3}{16}$ B.R.
.040
9 $\frac{1}{2}$°
$\frac{13}{16}$
$\frac{19}{32}$
(TYP) $\frac{9}{16}$
1 $\frac{3}{16}$
$\frac{5}{8}$
(4) $\frac{9}{16}$R (REF)
$\frac{9}{16}$
(ADD)
LDW280-18219-23
AL ALY 7075-T6
QQ-A-250/12
FINISH #88
1 EA REQD PER
MODULE
NEXT ASSY IS
LDW280-52665
I&T=E
.097-.102 DIA
(4 HOLES)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO SUPPORT SEQ DOOR RET. STRAP	CREATE -21 & -23	FR 12/14/6

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		NOT	REQ'D	APPROVED BY	JAP			JHS	NM		
				DATE	12/9/66			12/8/66	12-12-66		12-12-66	12/12
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP - D/S, SEQ. R.H. END CLOSURE, JAMB	LDW280-18219	B1

ISSUED BY E. ROESSLER X1153 12-8-66 SECTION VEH DES GROUP NO. 335 PL 35

01 NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18221-11-1	E		ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.040×3×3	NONE	88	
	LDW280-18221-17	E		HINGE	AL ALLOY SH	QQ-A-250/12	7075-T6	.063×2×3	NONE	88 NOTE 2	
	LDW280-18221-15	E		CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.090×3×6	NONE	NONE	
	LDW280-18221-13	E		CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.090×3×6	NONE	NONE	
	LDW280-18221-11	E		ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.040×3×3	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T42	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18221	A
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1.	1.00,1.10							INC EOA1	LM-4 THRU 15			COX 12-18-68		
	2.	1.10,3.00							INC EOA2	LM-2 (32) LM-3 (33)					
	3.	1.00,1.10 2.00,3.00							INC EOA3	LM-2 THRU LM-15					
	4.	1.10,3.00							INC EOA4						
	5.	1.00,1.10		P					INC LE0280-784	LM-4 (34) THRU LM-15 (45)			ES		
	6	1.00,2.00 3.00						Ⓟ	INC EOA6	LM-2 LM-3		H.D.	DUMITRESKU 1-15-67 B		

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18221	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

LDW280-18221 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52837	LM-3(33)	2
LM	LDW280-52837	LM-2(32)	2
PART NO. LDW280-18221-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52674	LM-3 (33)	1
LM	LDW280-52674	LM-2 (32)	1
PART NO. LDW280-18221-11, -11-1		GAEC SCH NO. 522	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52837	LM-3 (33)	1 EA
LM	LDW280-52837	LM-2 (32)	1 EA
PART NO. LDW280-18221-13 & 15		GAEC SCH NO. 521	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) ME-1A-3/1/9 EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM I

DOCUMENTATION TYPE II

DRAWN BY J.MAURO 12-7-66

LAYOUT BY MARZELLA

CHECKED BY H. RODALEWICZ 12-7-66

GRP LDR 12/8/66

V.D.I. J. Pusatere 12/8

STRUCTURES

STRUCTURES FEB 12/8

WEIGHTS

PROJ ENGR R.M. Carbee (WR) 12-8

REL GROUP 12/8/66

(P) GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE SCIENTIFIC EQUIPMENT
ACCESS DOOR

SIZE B

CODE IDENT NO. 26512

LDW280-18221 A

SCALE FULL NONE

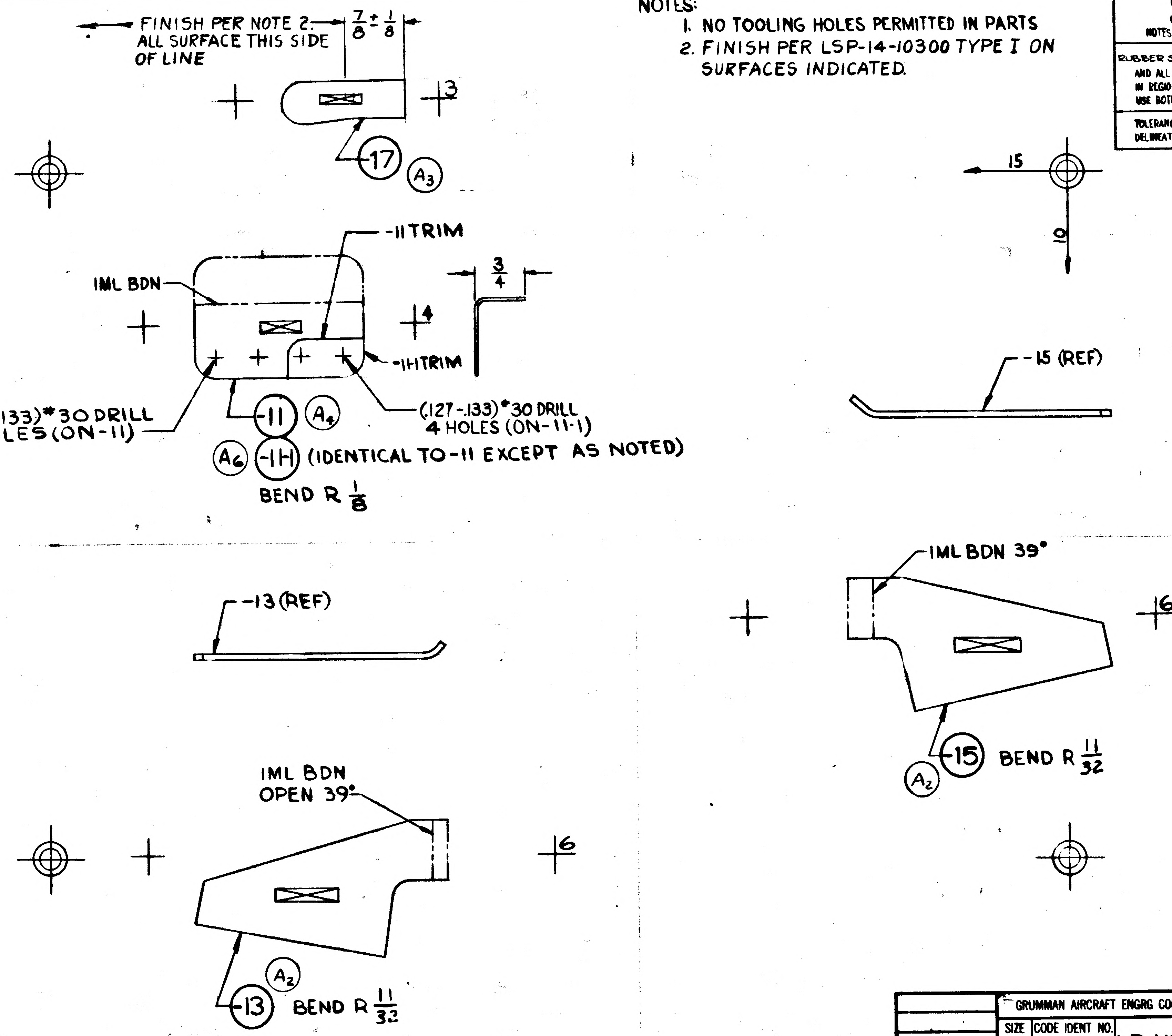
SHEET 1.00 OF 4.

ENG 77.1 12-65

CDR 12-7-66

01

NAS 9-1100


FINISH PER NOTE 2 ALL SURFACE THIS SIDE OF LINE
7/8 ± 1/8
3
17
A3
-11 TRIM
IML BDN
3/4
4
-1-1 TRIM
(.127-.133) #30 DRILL 2 HOLES (ON-11)
11
A4
(.127-.133) #30 DRILL 4 HOLES (ON-11-1)
A6
-1-1 (IDENTICAL TO -11 EXCEPT AS NOTED)
BEND R 1/8
15
10
-15 (REF)
-13 (REF)
IML BDN 39°
6
A2
15 BEND R 11/32
IML BDN OPEN 39°
6
A2
13 BEND R 11/32

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. FINISH PER LSP-14-10300 TYPE I ON SURFACES INDICATED.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18221A

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18221	A
	SCALE		SHEET 300	

FOR PHOTO REPRODUCTION

NAS 9-1100

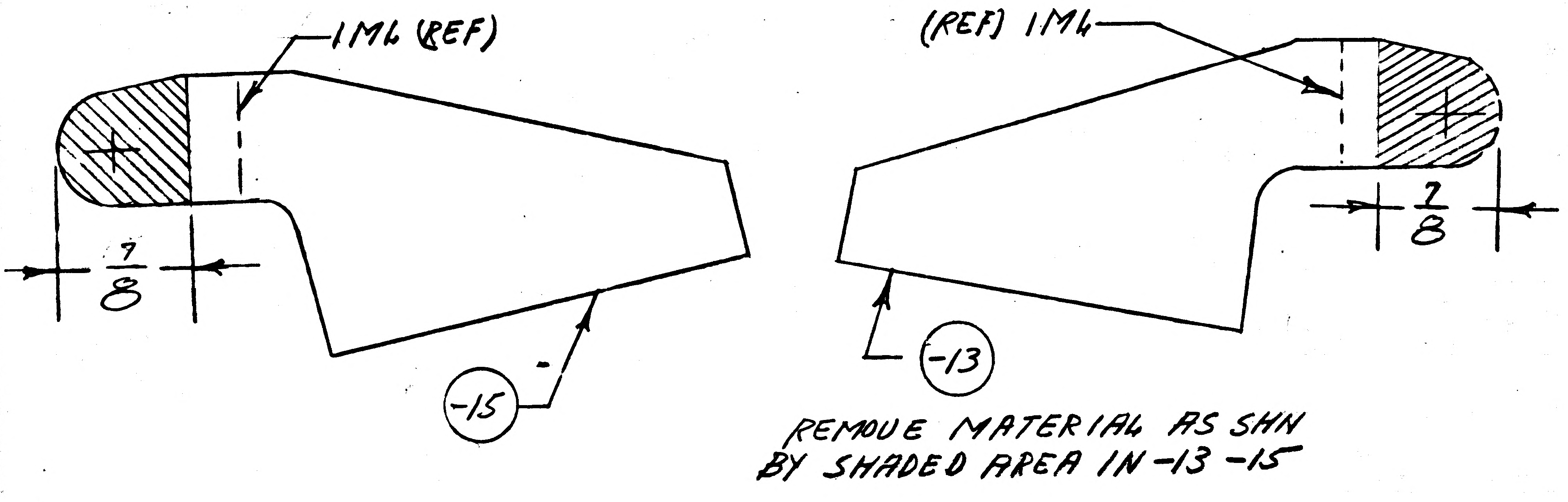
B

ENG 32.1 REV 3-65

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18221 | EO NO. A2
CONTROL INFO NO. LM-27-359



REMOVE MATERIAL AS SHN BY SHADED AREA IN -13 -15

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

27

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
MATERIAL NO LONGER REQ'D FOR INSTALLATION ON N/A	REMOVED MATERIAL IN -13 -15	C JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 2 (32)	LM-3 (33)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY				~		J. Tdus			
DATE	7/6/67			~	4-7-67	4-7-67	4-19-67	4/19/67	
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C 27	ANGLE D/S SCIENTIFIC EQUIPMENT DOOR	LDW 280-18221	A2

ISSUED BY LIAISON B WALLACE 1921 9043 4-7-67. SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

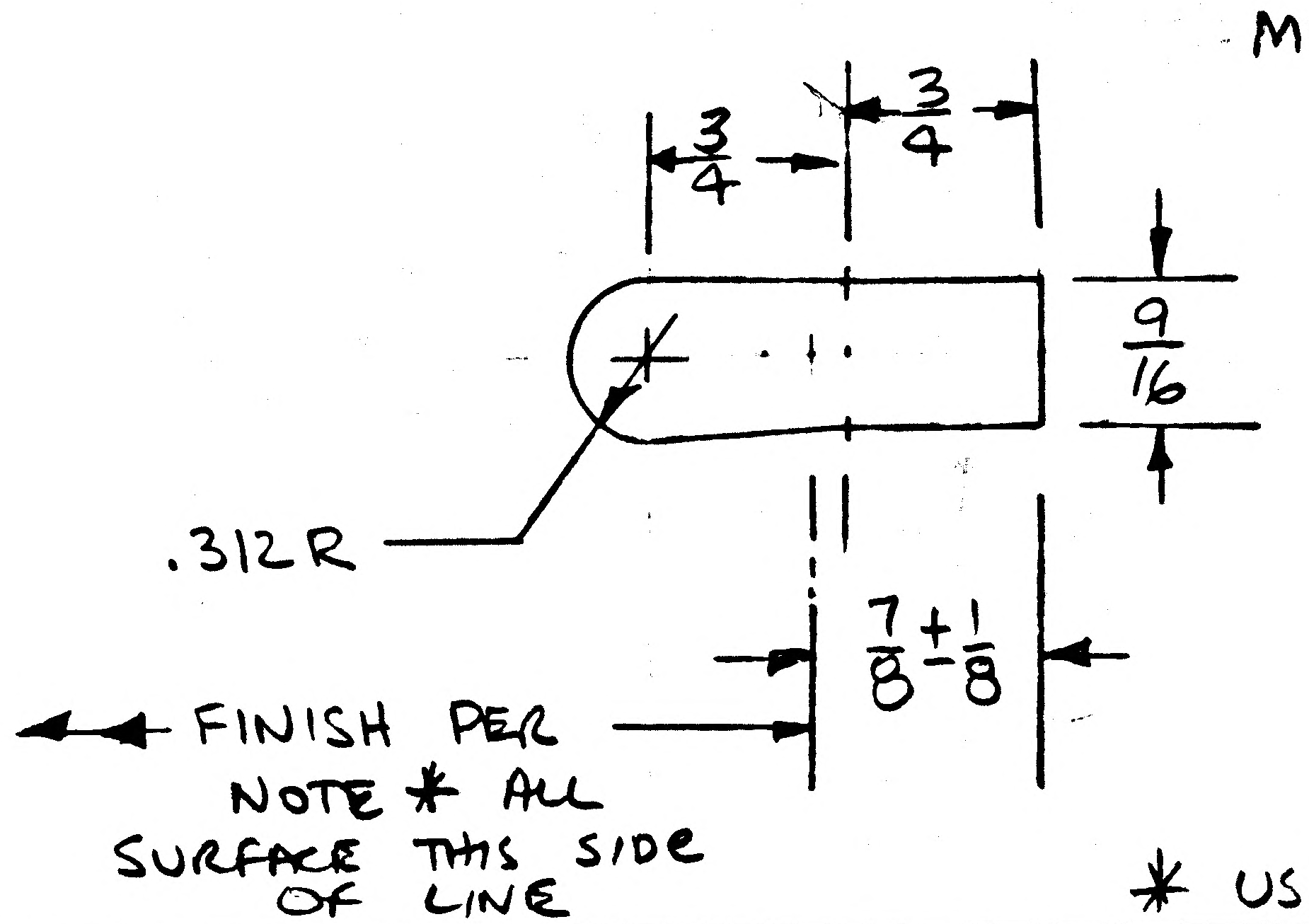
A
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-18221
EO NO. A3
CONTROL INFO NO. LDW280A6385

ON LDW280-18221 ADD -17 EFFECTIVE LM-2 (32) THRU LM-15 (45)
2 EA REQ'D PER VEHICLE. N/A LDW280-52837.

MAKE -17 HINGE FROM .063 AL ALY SHT 7075-T6
FINISH * 8B AND SEE NOTE *
MAT'L = QQ-A-250/12
IN FIELD OF DWG ADD NOTE * AS FOLLOWS:
FINISH PER LSP-14-10300 TYPE I
ON SURFACES INDICATED.



* USE NEXT AVAILABLE NOTE NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

LCD19-1197
2
C

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE
PART REDESIGNED LCD #1197	ADDED -17 AND NOTE *	JK 4/28/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-2 (32) THRU LM-15 (45)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NONE	

APPROVED BY				JAS	WJH		Dam		
DATE	4/18/67			4/18/67	4/20/67		4/25/67	4-28-67	
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE-DESCENT STAGE SCIENTIFIC EQUIP. ACCESS DOOR	LDW280-18221	A3

ISSUED BY MARZELLA SECTION VEHICLE DESIGN & INT GROUP NO. 335 PL 25

01
NAS 9-1100

B

ENG 32.1 REV 3-65

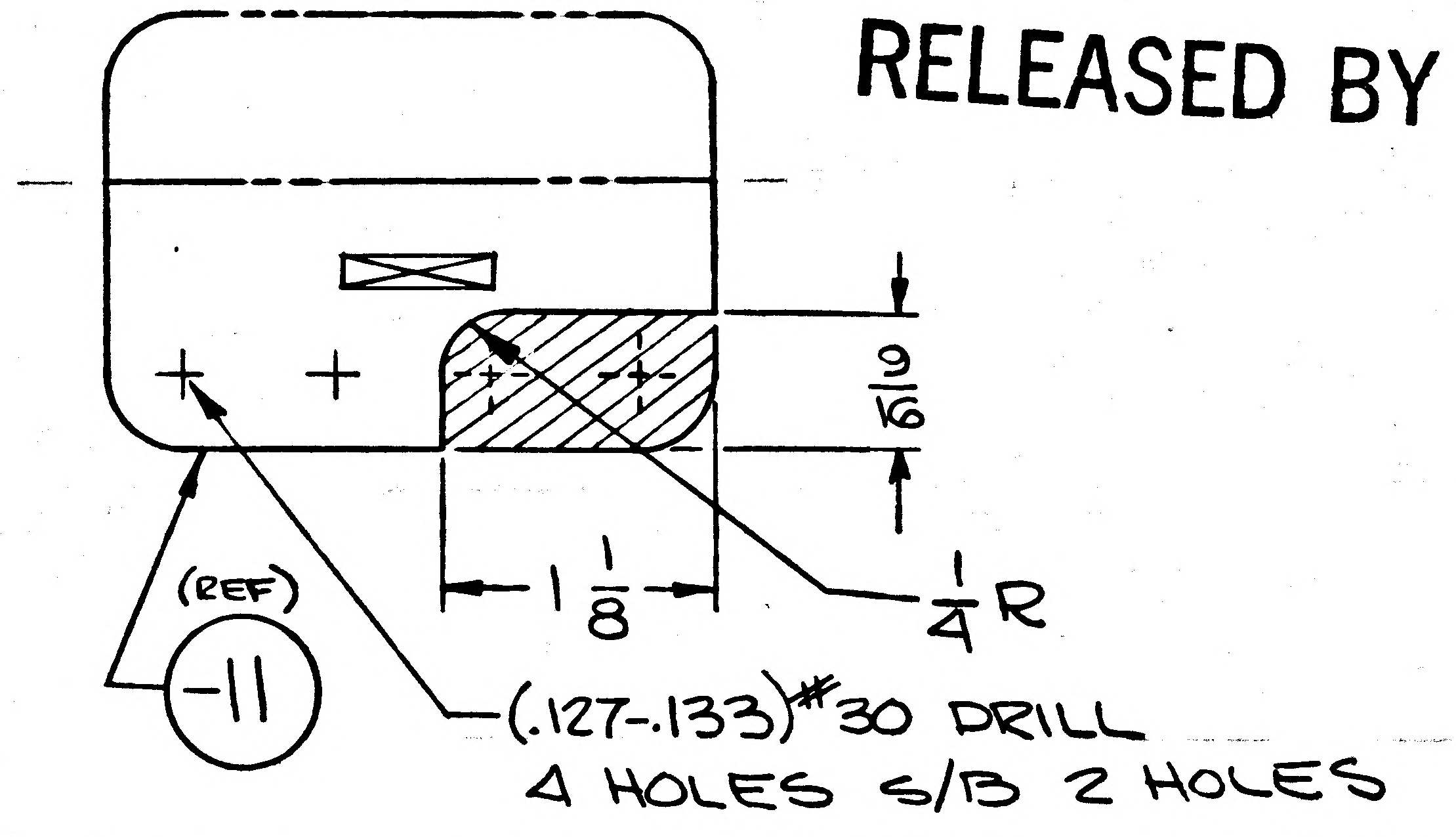
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW 280-18221		EO NO. A4
CONTROL INFO NO. LM-5-13558		

TRIM -11 AS SHOWN IN SHADED AREA
(THIS IS A LOFTED DWG TRIM DIM'S ARE FOR DRAFTING PURPOSES ONLY)

RELEASED BY LIAISON



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	5

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
TRIM REQD DUE TO STRUCTURAL INTERFERANCE	TRIMMED -11	① JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JaP			—	JFJ	CH	WLB	
DATE	7/21/67 VDI			—	7-6-67	7-5-67	7/21/67	7/6/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE D/S~S.E.B ACCESS DOOR	LDW280-18221	A4

ISSUED BY LIAISON D. RAGAS / X1153 SECTION YDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 784
CONTROL INFO NO. LDW280B0091

ON DASH NOS. NOTED * WITH N/A NOTED ** REMOVE LM4(34) THRU LM15(45) EFFECTIVITY REQMTS FROM THE FOLLOWING DRAWINGS.

DWG NO LDW280	DASH NO. *	TITLE	N/A NO. ** LDW280	CHG NO.
52648	-13	DOOR INSTL D/S QUAD II SEQ ACCESS	54553	B8
52768	-3-5	FOIL ASSY D/S QUAD II SEQ PLUME IMPINGE	52767	B3
52769	-11	SKIN ASSY D/S QUAD II SEQ PLUME IMPINGE	52767	B1
52744	-25-27	SKIN ASSY D/S QUAD II SEQ PLU IMP SHIELD	52742	A6
18130	-15-17	ZEE QUAD III UPR PLUME IMP. SHIELD	52744	A9
52743	-15-17	FOIL ASSY D/S QUAD II PLUME IMP SHIELD UPR DK	52742	A3
52741	-3	SKIN ASSY D/S QUAD II PLUME IMP SHIELD SIDE FIXED	52739	A2
18125	-19-21	ZEE D/S QUAD II AMBIENT HE ACCESS PLM IMP SHLD	52743	B2
52740	-1	FOIL ASSY D/S QUAD II PLME IMP SHIELD SIDE FIXED	52739	A3
52837	-3	FRAME ASSY D/S QUAD II SEQ ACCESS DOOR	52648	A7
P18174	-1-3	BLANKET ASSY D/S QUAD II SEQ ACCESS COVER	52648	A1
52767	-1	SHIELD ASSY D/S QUAD II SEQ A/D PLM IMP	52648	B4
18221	-17 -11	ANGLE D/S SEQ ACCESS DOOR	52837 52665	A5
P17537	-31-33-35-37-39-41-47 -27-29	FRAME ASSY D/S SEQ THERMAL SHIELD ACCESS DR	52837 52674	A6
P18170	-15-17-19	LINK D/S SEQ ACCESS DOOR	52837	B2
P18172	-11-13 -11-15-17-18	TUBES D/S QUAD II SEQ A/D & JAMB L.H. VERT	52837 52674	A3
P18173	-11-15 -13-15	TUBE D/S QUAD II SEQ A/D L.H. LWR.	52837 52674	A4
P18214	-11-13-15-19-21-23	TUBE D/S QUAD II SEQ A/D L H UPR	52837	A4
P18215	-11-13-15-17-19	PLATE D/S QUAD II SEQ A/D-YOKE	52837	A2
P18216	-11-13-15-17-19-21	PLATE D/S QUAD II SEQ A/D-YOKE	52837	A2
P18217	-11-13-15-17-19	TEE D/S SEQ ACCESS DOOR STRAP SPT	52837	B1
P18218	-11-13-15-17 -19	ANGLES D/S QUAD II SEQ A/D STRAP SPT	52837 52665	B2
P18181	-11-13-15-17-19 -13-19	TUBE D/S QUAD II SEQ A/D R.H. UPR	52837 52674	A1
P18180	-11-13-15-16-17-19	TUBE D/S QUAD II SEQ A/D	52674	A1
P18213	-11 -13-15-17	CLAMP D/S QUAD II SEQ ACCESS JAMB L H LWR	52674 52665	A3
P18176	-23-25	BLANKET ASSY D/S QUAD II SEQ UPR & SIDE PNL	52665	A6
P17581	-3-7	BLANKET ASSY D/S QUAD II VERT	52665	A4
P17575	-13	WASHER D/S THERMAL SHIELD LWR DK STD OFF	52665	B4
52582	-1-15	HINGE ASSY D/S QUAD II SEQ SPT ACCESS FLAP	52674	B3
52674	-1-3	JAMB ASSY D/S QUAD II SEQ ACCESS DOOR	52665	A4
52739	-3	SHIELD ASSY D/S QUAD II PLNE IMP. SIDE THERM.	52665	A3
52742	-9-11	SHIELD ASSY D/S QUAD II IMP SHIELD UPR DK	52665	A9

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 1433 CCA 586

REASON FOR EO: ALSEP REDESIGN

DESCRIPTION OF EO: ON -* REMOVED LM-4-15 REQMTS FOR N/A LDW 280-**.

GAEC EO RELEASE: C — SK 11/1/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34)	
		THRU	
LM		LM15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	10/27/67			10-27-67	10/30/67		10/30/67	11-1-67
P	VD1							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 784

11-10
ISSUED BY: PLANTE 1156 SECTION: VD1 GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18221 EO NO. A1
CONTROL INFO NO. LDW280A5076

Z EFF. FOR - 13 & -15 — LM-2(32) & LM-3(33) WAS: LM2(32) THRU LM15(45)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: MECHANISM REDESIGN

DESCRIPTION OF EO: ON -13 & -15 REMOVED LM 4 THRU 15

GAEC EO RELEASE: FR 2/23/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO.
LM		LM-4(34) -	15(45)
1			

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	2/14/67			2/14/67	2/14/67		2/14/67	2-18-67
REVISE DWG	RECORD EO	REWORK	SCRAP	6	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE - DES. STAGE SCIENTIFIC EQUIPMENT ACCESS DOOR	LDW 280-18221	A1

ISSUED BY ZUVER / STRAKOSCH X1153 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18221
EO NO. A6
CONTROL INFO NO. LM 5-14004

THIS IS A REV OF EO A4

ADD -11-1 IDENTICAL TO -11 EXCEPT AS NOTED.

IN MOD/BLK FOR (-11-1)

N/A LDW280-52674 LM2, LM3 1 REQD

FOR -11

N/A LDW280-52674 LM2, LM3 1 REQD WAS 2 REQD

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

(5)
GAEC EO RELEASE C
JK

REASON FOR EO: PART WAS NOT REIDENTIFIED FOR NEW TRIM.

DESCRIPTION OF EO: REF EO A4
ADDED -11-1 WAS -11
IN MOD/BLK REVISED QTY FOR -11 1 REQD WAS 2 REQD

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 2 (32)	
LM		LM3 (33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~
DATE	6/12/68			—	6-10-68	6/10/68	6/10/68	6/10/68
	VD1							

PRIORITY: C
DRAWING TITLE: ANGLE D/S - SEQ B ACCESS DOOR
DRAWING NO. LDW280-18221
EO NO. A6

ISSUED BY Don Ragas X1153 SECTION VD1 GROUP NO. 280 PL 5

01

NAS 9-1100

LDW280-18222 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23575	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
		LM-4(34)	2
		LM-3(33)	2
LM	LDW280-23575	LM-2(32)	2
PART NO. LDW280-18222-17		GAEC SCH NO. 51-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23575	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
		LM-3(33)	1 EA
LM	LDW280-23575	LM-2(32)	1 EA
PART NO. LDW280-18222-11, -12, -13 & -15		GAEC SCH NO. 51-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A			
LAST DASH NO. USED	-17	PRIM NO.	LE(001)		
		203	MD-14	A-1-16-	7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	N.CIOFFI 12-21-66	RELIABILITY	
LAYOUT BY	P.WEISSLITZ 12-8-66		
CHECKED BY	EG 1-9-67		
~~GR. LEADER~~			
VEH. DES INT.	1/11/67		
STRUCTURES	WH 1/11/67	PROJ ENGR	R.M. Carbee 1-12-67
STRUCTURES	1/12	REL GROUP	1-13-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE QUAD. 2 SCIENTIFIC EQUIP.
UPPER DECK PLUMESHIELD SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18222	A
SCALE-FULL NONE		SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00 & 3.00						EO A1	EO A1 INITIAL DRAWING RELEASE. PARTS MADE PER EO. EG	LM-2 THRU LM-15	NOT	REQD	CIOFFI 12-21-66	RMC	

CHG APPROVED						
LTR	~~GROUP LDR~~	VEH. DES. INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
A		1/11/67	1/11/67			

ENG 77.16 3-66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18222	A

SCALE NONE SHEET 1.10

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18222-17	E	PLATE	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 X 1 X 2	NONE	88	
		LDW280-18222-15	E	TEE	AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE*62248 X 1 1/2	NONE	88	
		LDW280-18222-13	E	TEE	AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE*62248 X 1 1/4	NONE	88	
		LDW280-18222-12	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 X 4 X 7	NONE	88	
		LDW280-18222-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 X 4 X 7	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18222	A

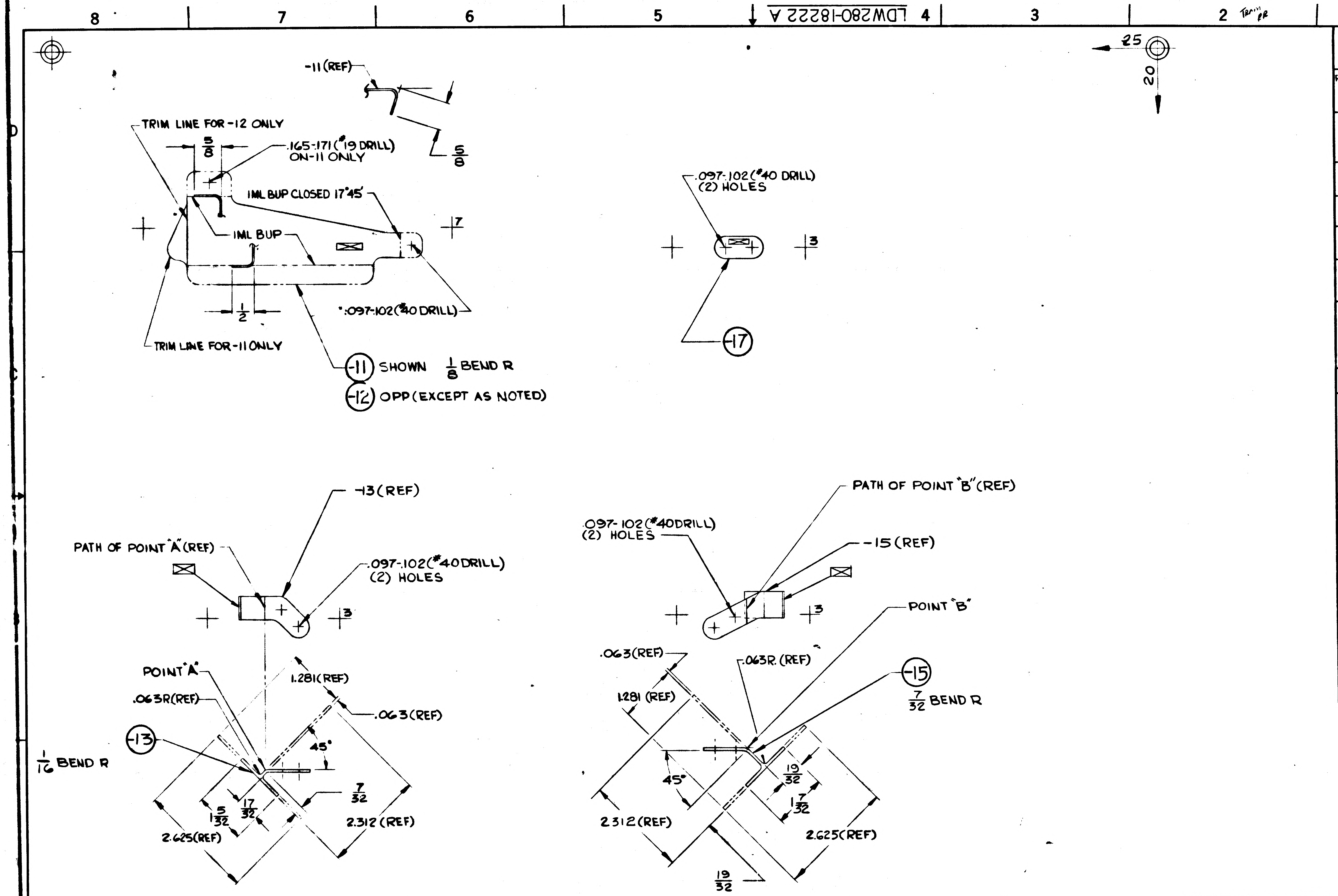
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



-11 (REF)
5/8
5/8
TRIM LINE FOR -12 ONLY
.165-.171 (#19 DRILL) ON-11 ONLY
IML BUP CLOSED 17°45'
IML BUP
1/2
*.097-.102 (#40 DRILL)
TRIM LINE FOR -11 ONLY
-11 SHOWN 1/8 BEND R
-12 OPP (EXCEPT AS NOTED)
.097-.102 (#40 DRILL) (2) HOLES
-17
25
20
-13 (REF)
PATH OF POINT "A" (REF)
.097-.102 (#40 DRILL) (2) HOLES
POINT "A"
.063R (REF)
1.281 (REF)
.063 (REF)
-13
1/16 BEND R
45°
7/32
5/32
17/32
2.625 (REF)
2.312 (REF)
PATH OF POINT "B" (REF)
.097-.102 (#40 DRILL) (2) HOLES
-15 (REF)
POINT "B"
.063 (REF)
.063R. (REF)
-15
7/32 BEND R
1.281 (REF)
45°
19/32
17/32
2.312 (REF)
2.625 (REF)
19/32

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18222	REV. A
MODEL OR END ITEM	SCALE - FULL			SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 440
CONTROL INFO NO. LDW280A-4581

TO THE FOLLOWING DRAWINGS REVISE MODEL BLOCK ADD:- N/A LDW280-52665 EFF. LM-2(32) THRU LM-15(45)

DRAWING NO	* DASH NO	TITLE	QUAN REQ'D	CHG. NO.
LDW280M17698	-11	WASHER, DESCENT STAGE~ PLUME IMPINGEMENT-HEAT SINK	49	B1
LDW280-18222	-11	BRACKET, D/S~QUAD II~SEQ UPR. PLUME. IMP. SHIELD SUPPORT	2	B1
LDW280P18218	-19	TUBE~D/S~QUAD II~SEQ~ ACCESS DOOR	2	B1
LDW280P17575	-11 & -13	WASHER~THERMAL SHIELD~ LOWER DECK~STANDOFF	13	A4
LDW280P17480	-17	STRAP~D/S~QUAD I~ BATTERY ACCESS	3	A4
LDW280-18110	-11	CHANNEL~D/S~QUAD II~ PLUME IMP. SHIELD STRAP LINK	1	A3
LDW280-18219	-21 & -23	CHANNEL~D/S~S.EQ. ACCESS DOOR YOKE SUPPORT	1	B3

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL PARTS REQUIRED

DESCRIPTION OF EO: REVISED MODEL BLOCK OF * ADDED N/A LDW280-52665 EFF.:- LM-2(32) THRU LM-15(45)

GAEC EO RELEASE: 6 1/11/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
LM		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQ'D

APPROVED BY									
DATE	1/4/67	1/9/67			1/1/67		1-9-67	1/11/67
6	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 440

ISSUED BY E. MADDEN / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 35

01
NAS 9-1100

A **RELEASED BY LIAISON**

ENG 32.1

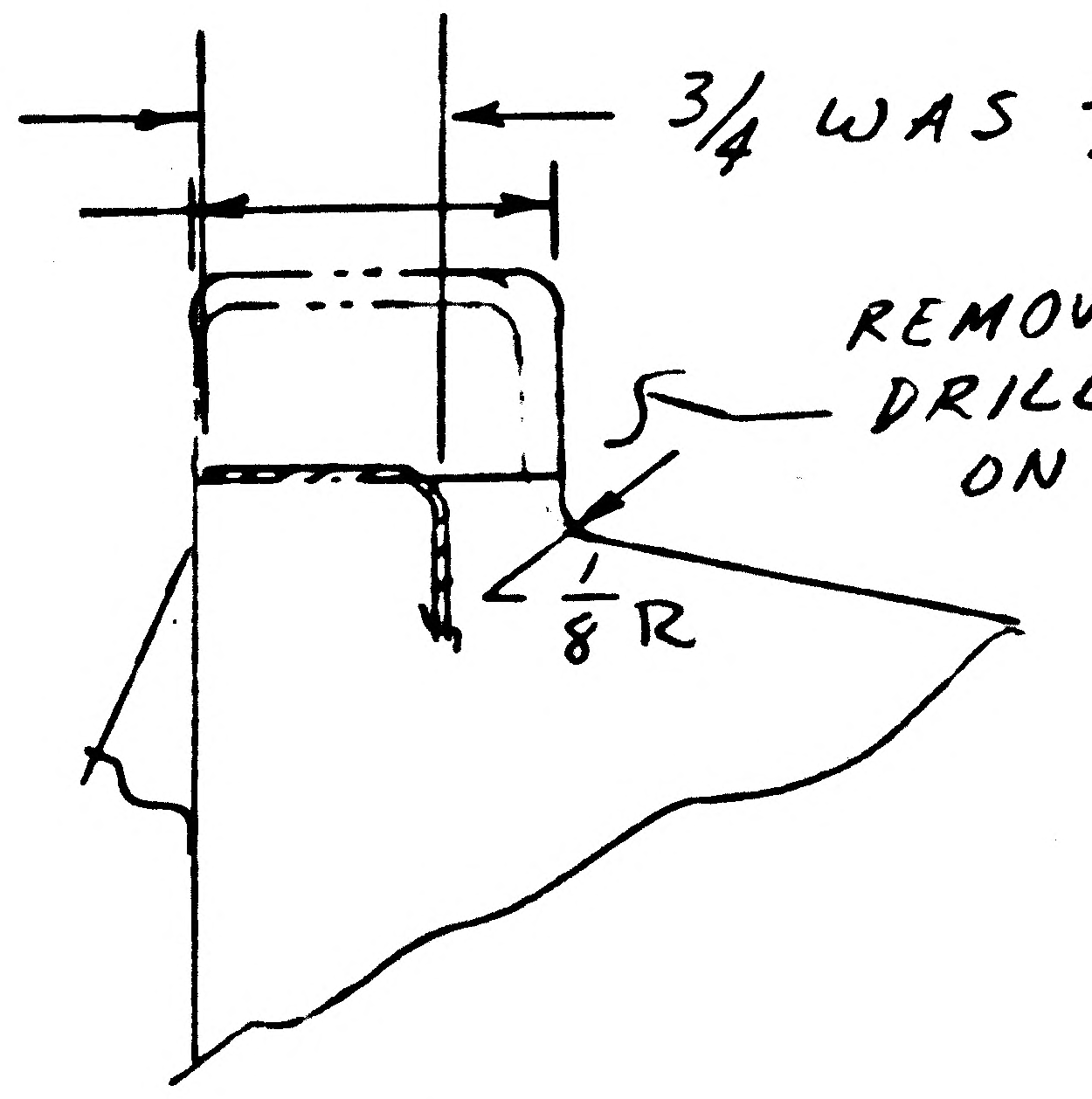
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280 18222		EO NO. B2
CONTROL INFO NO. LH 5 11916		

ADD -19 & -20 IDENT TO -11 & -12 EXCEPT AS SHN:

N/A-LDW280-23575 (1EA/REQD) I&T=E

REMOVE-11 & -12



3/4 WAS 5/8

1 1/4 WAS 1.00

REMOVE CALLOUT:
DRILL #19 (.165-.171)
ON -11 (NOT REQD ON-19)

1/8 R

5
C

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO FACILITATE INSTL OF BLANKET STRAPS

DESCRIPTION OF EO: ADDED -19 & -20 REMOVED -11 & -12

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2(32) THRU 15(45)	

DRAWING CHANGE REQD: REVISE DWG / RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP -11 -12

	APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	WT				~	[illegible]	CH	[illegible]	[illegible]
DATE	2/27/67				~	2/28/67	2-27	3-2-67	3-1-67
1	VD1	SUPPORT	RELIAB GROUP						

PRIORITY: C

DRAWING TITLE: BRACKET D/S - QUAD II - SEQ B - PLUME SHLD SUPT

DRAWING NO.: LDW280-18222

EO NO.: B2

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO. 335 PL 5

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18222
EO NO. B3
CONTROL INFO NO. LDW280E '316

RESTRICT -13, -15, -17, -19 & -20 TO LM-2 & LM-3
(EFF WAS LM-2 THRU LM-15)

DETAIL SPEC REQ	✓	CL II ENGRG CHG		CL I ENGRG CHG		(LCD 1433)

REASON FOR EO: REDESIGN FOR ALSEP (CDR LIST)

DESCRIPTION OF EO: RESTRICTED -13, -15, -17, -19 & -20 TO LM-2 & LM-3. REMOVED LM-4 THRU LM-15 EFFECTIVITY

GAEC EO RELEASE: H.F. 2/9/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ · RECORD EO
DISPOSITION OF PARTS: REWORK · SCRAP ✓

APPROVED BY	JAS			RJX	W/H		JAP	
DATE	1/15/68			1-15-68	1-16-68		1/15/68	2/9/68
—	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: BRACKET - D/S QUAD II SCIENTIFIC EQUIPMENT UP. DECK PLUMESHIELD SUPT
DRAWING NO.: LDW280-18222
EO NO.: B3

ISSUED BY ROESSLER / THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1,1.10,2,3						EO A1	EOA1 INITIAL DRAWING RELEASE PARTS MADE PER EO. EG	LM-2 THRU LM-15	NOT	REQ'D	KORDES 12-16-66		

CHG APPROVED	LTR	~~GROUP LDR~~	VEH.DES.INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
	A		1/4/67	1/4/7							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18223	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

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NAS 9-1100

LDW280-18223 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-15(45)	1EA
↑	↑	LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
		LM-6(36)	1EA
	↓	LM-5(35)	1EA
	LDW280-54791	LM-4(34)	1EA
↓	LDW280-52791	LM-3(33)	1EA
LM	LDW280-52791	LM-2(32)	1EA
PART NO. LDW280-18223-13 & -15		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-15(45)	1EA
↑	↑	LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
		LM-6(36)	1EA
↓	↓	LM-5(35)	1EA
LM	LDW280-54791	LM-4(34)	1EA
PART NO. LDW280-18223-11, -17, & -19		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL INFO A			
LAST DASH NO. USED	-19	PRIM NO. 233	VE(001) MP-14	A-1-11-7	EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	G. KORDES 12-16-66	RELIABILITY	
LAYOUT BY	G. BARNES 12-9-66		
CHECKED BY	EG 12-22-66		
~~GR LDR~~			
VEH.DES.INT			
STRUCTURES	1-11-67	PROJ ENGR	1-9-67
STRUCTURES	1/9	REL GROUP	1/10/67
WEIGHTS			

④ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE - QUAD IV
SQUIBB DISCONNECT SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18223	A
SCALE NONE		SHEET 1.00 OF 4	

ENG 77.1 12-65

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NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18223-19	E	TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE *22417 × 4 3/4	NONE	88	
								LDW280-18223-17	E	TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE *22417 × 3 1/2	NONE	88	
								LDW280-18223-15	E	ANGLE	AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE *79G × 2 1/4	NONE	88	
								LDW280-18223-13	E	ANGLE	AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE *79G × 1 1/4	NONE	88	
								LDW280-18223-11	E	BRACKET	AL ALLOY SH.	QQ-A-250/12	7075	.040 × 6 × 11	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T6	HEAT TREAT	MIL-H-6088

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18223
A

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

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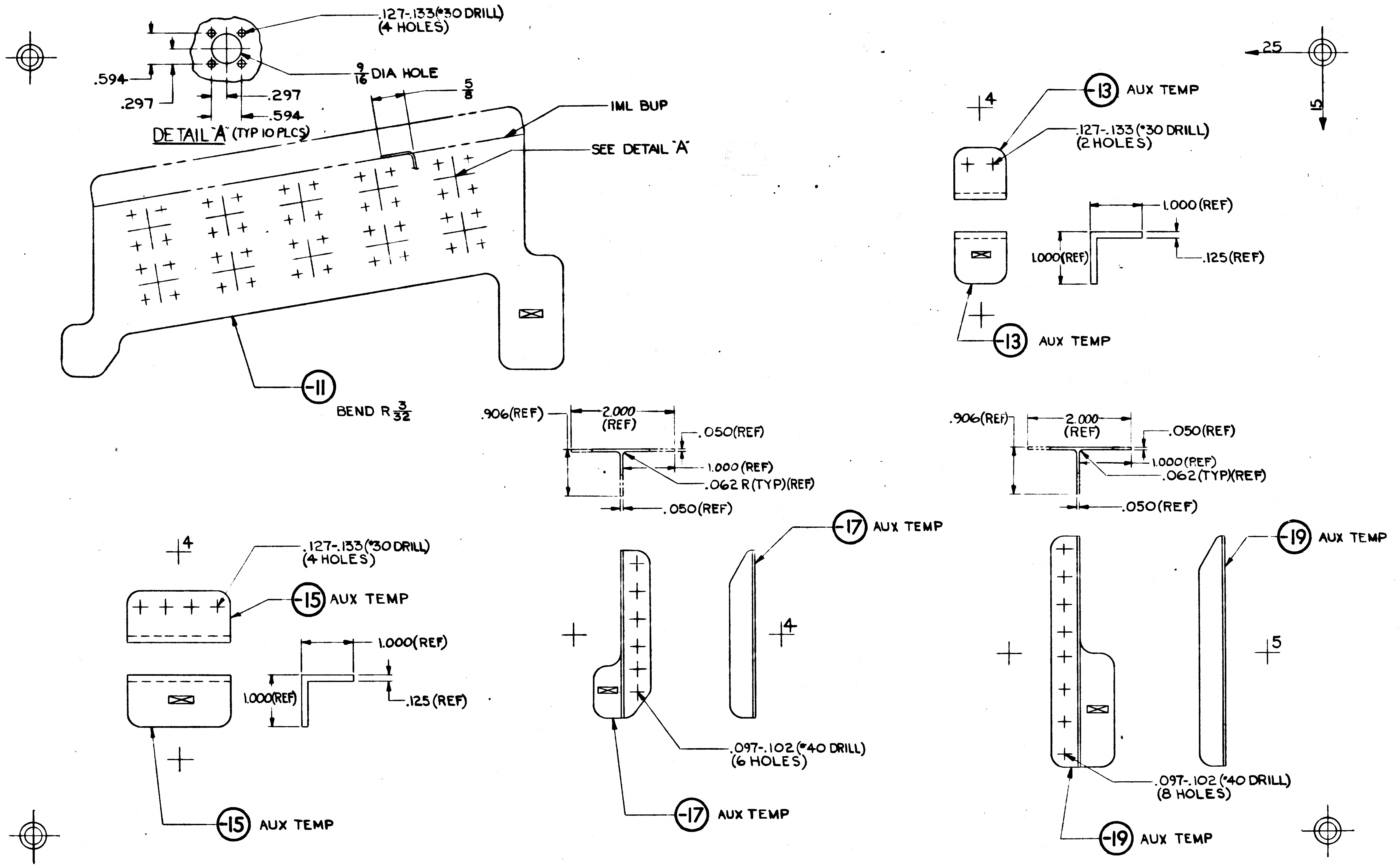
NAS 9-1100


.127-.133(#30 DRILL)
(4 HOLES)
.594
.297
9/16 DIA HOLE
.297
.594
DETAIL "A" (TYP 10 PLCS)
5/8
IML BUP
SEE DETAIL "A"
-11
BEND R 3/32
4
-13 AUX TEMP
.127-.133(#30 DRILL)
(2 HOLES)
1.000(REF)
1.000(REF)
.125(REF)
-13 AUX TEMP
25
15
.906(REF)
2.000
(REF)
.050(REF)
1.000(REF)
.062 R(TYP)(REF)
.050(REF)
.906(REF)
2.000
(REF)
.050(REF)
1.000(REF)
.062(TYP)(REF)
.050(REF)
4
.127-.133(#30 DRILL)
(4 HOLES)
-15 AUX TEMP
1.000(REF)
1.000(REF)
.125 (REF)
-15 AUX TEMP
-17 AUX TEMP
4
.097-.102(#40 DRILL)
(6 HOLES)
-17 AUX TEMP
-19 AUX TEMP
5
.097-.102(#40 DRILL)
(8 HOLES)
-19 AUX TEMP

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
$\sqrt{125}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\sqrt{200}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL $\sqrt{}$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18223	A
	SCALE FULL			SHEET 3.00

FOR PHOTO REPRODUCTION

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NAS 9-1100

ENG 22.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1381
CONTROL INFO NO. LDW280B7425

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18223 ✓	B3	SEE DWG
↑ -18224	B1	↑
-18225	A1	
-18236	C1	
-18238	A2	
-18265	A3	
-18266	A4	
-18267	A3	
↓ -18268	A3	↓
LDW280-18271	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: 4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(5)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/1/69			4-2-69	4/1/69		4/9/69	4/21/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1381

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

LEO 280 | EO NO. 1523
CONTROL INFO NO. LDW280B 8107

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18190 ✓	SEE DWG	D2
195 ✓		C4
196 ✓		B3
197 ✓		B4
198 ✓		B3
199 ✓		B3
200 ✓		B3
201 ✓		B5
206 ✓		B5
LDW280-18223 ✓	SEE DWG	B4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 28 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69; JK 8/9/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	PJT							Bauman
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8-2-69		8/2/69	8/8/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C.	SEE DRAWINGS	LEO 280	1523

8-22-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

GRUMMAN AEROSPACE CORPORATION
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 1767
CONTROL INFO NO. LDW280B8996

IN MOD BLK FOR THE FOLLOWING DWGS & ALL DASH NO'S (*)

N/A LDW280-54791 RESTRICT EFF LM 4 (34) THRU 9 (39)
WAS
LM 4 (34) THRU 14 (44)
& LTA 11 (23)

DWG NO	TITLE	CHG. NO.
✓ LDW280 -17998-*	SEE DWG	E4
✓ -18223-*		B5
-18225-*		A3
-18457-*		A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994-PK89 (5)

REASON FOR EO: BRACKETS NOT REQD FOR CMMP

DESCRIPTION OF EO: IN MOD BLK FOR (*) N/A LDW280-54791 RESTRICTED EFF LM 4(34) THRU LM 9(39) WAS LM 4(34) THRU 14(44) LTA 11(23)

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10 (40) THRU 14 (44)	
LM		LTA 11 (23)	
LM			

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ☑

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					NM			
DATE	11-21-69			11/21/69	11/21/69		11/22/69	11-24-69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1767

CDR 112669
ISSUED BY: DON RAGAS X86046 SECTION: VD1 GROUP NO. 280 PL 25

01

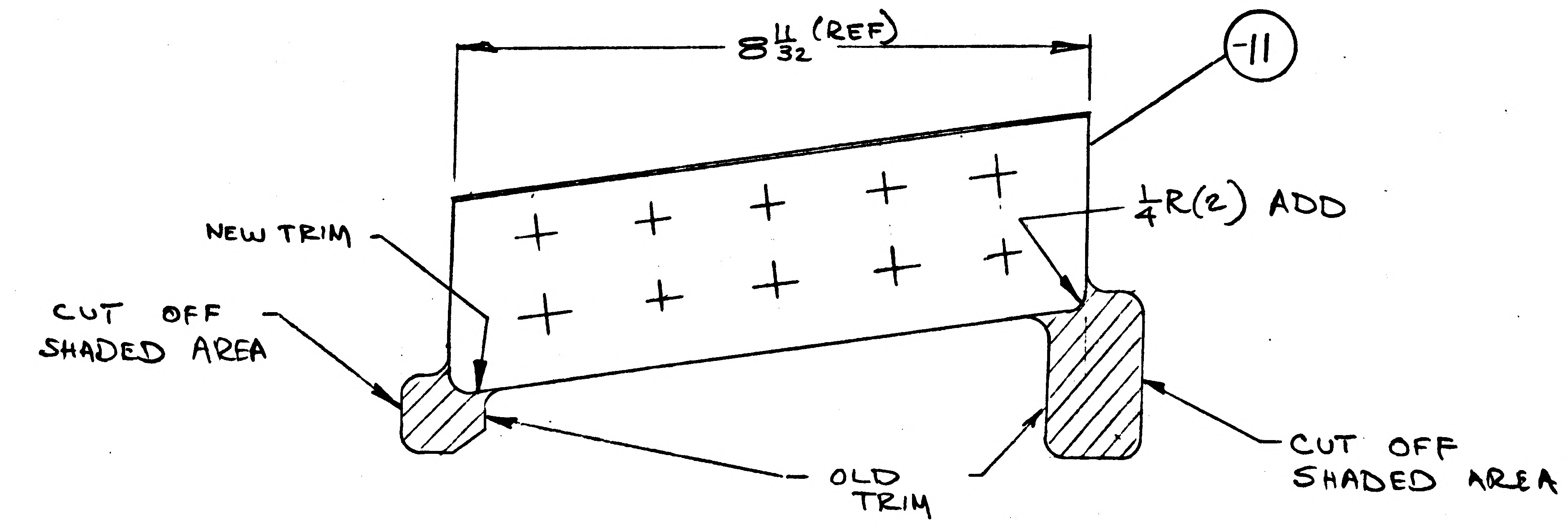
NAS 9-1100

B

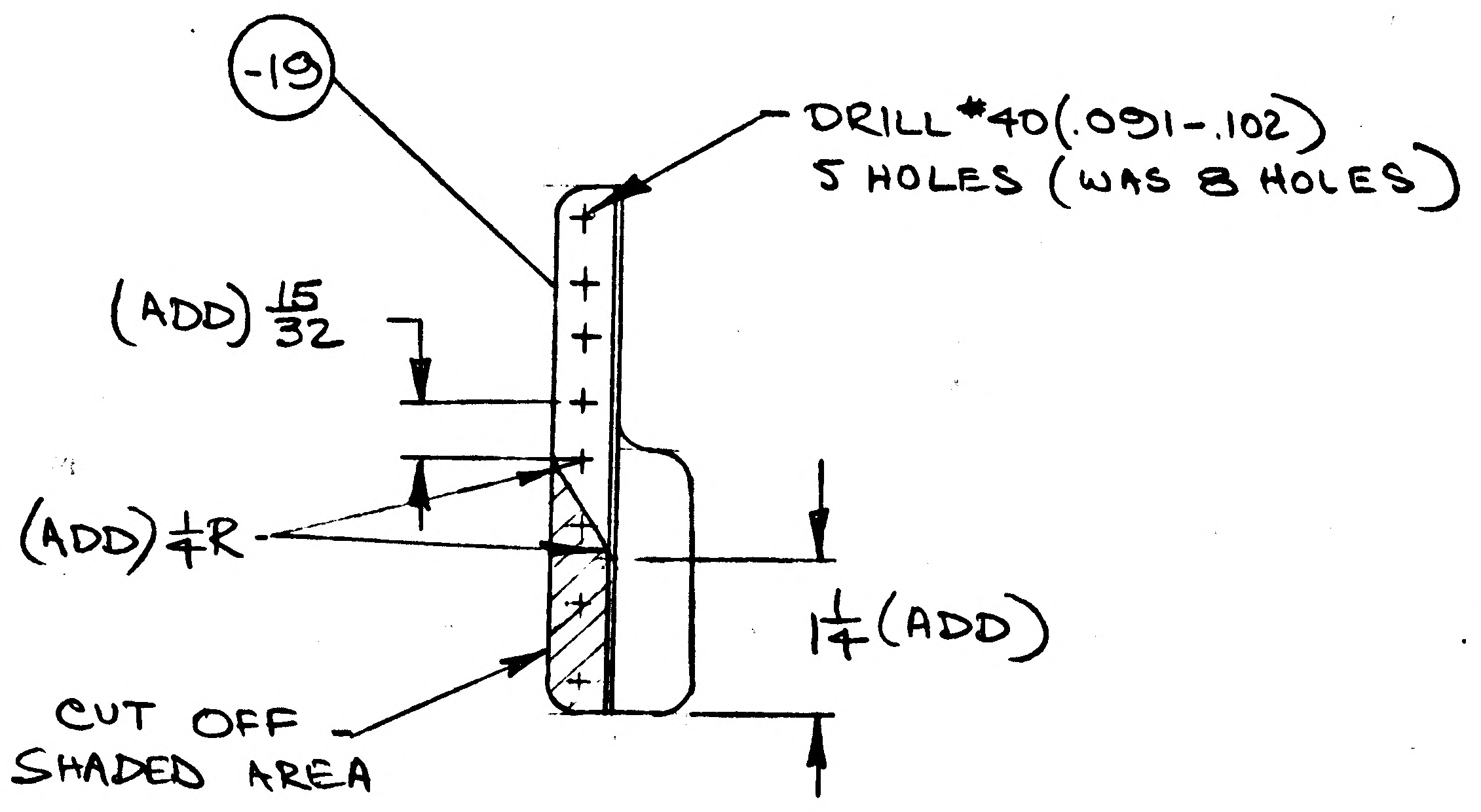
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 EMF
ENGINEERING ORDER

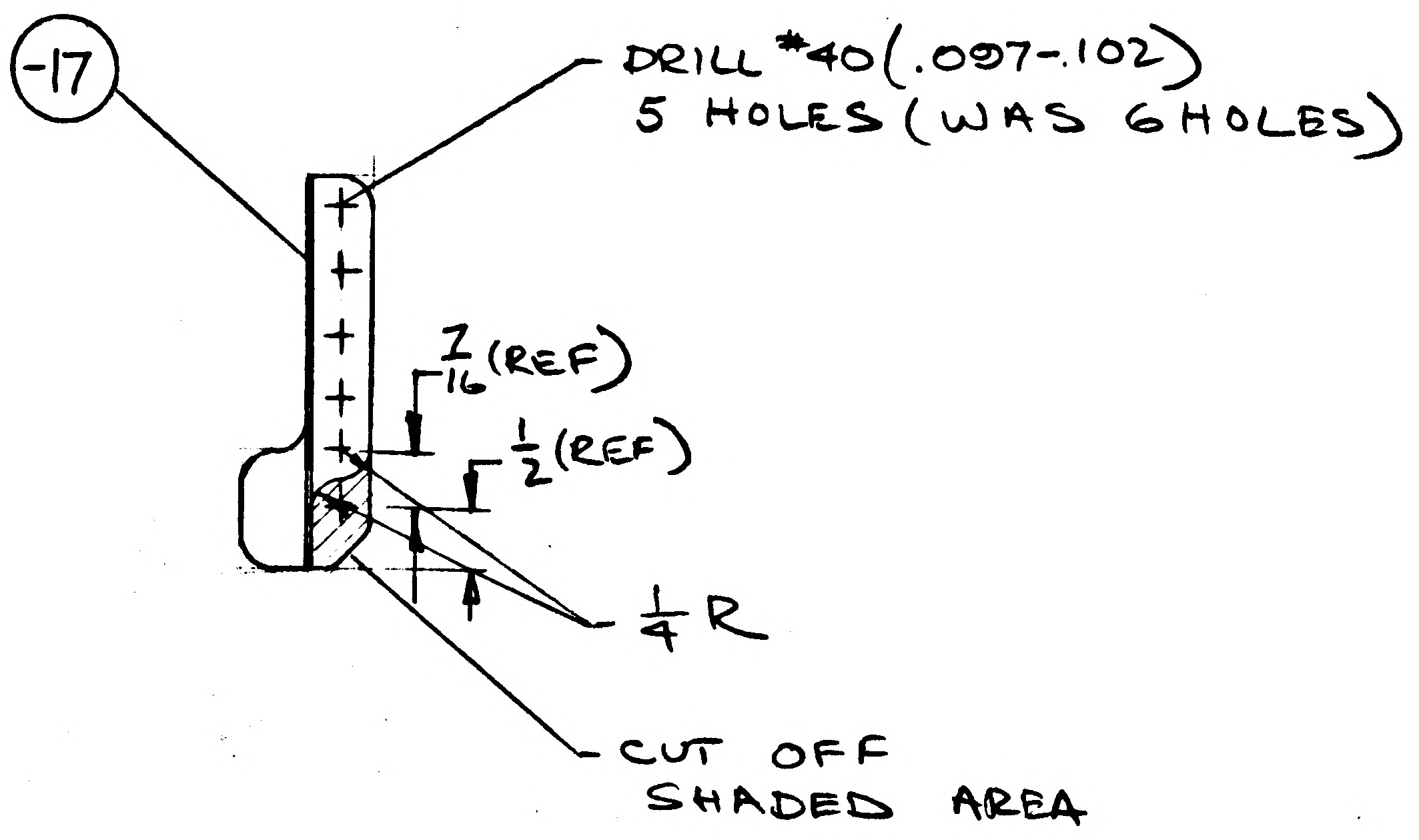
DWG. NO. LDW280-18223		EO NO. B1
CONTROL INFO NO. LDW280A 4518		



8 11/32 (REF)
-11
1/4 R(2) ADD
NEW TRIM
CUT OFF SHADED AREA
OLD TRIM
CUT OFF SHADED AREA



-19
DRILL #40(.091-.102) 5 HOLES (WAS 8 HOLES)
(ADD) 15/32
(ADD) 1/4 R
1 1/4 (ADD)
CUT OFF SHADED AREA



-17
DRILL #40(.097-.102) 5 HOLES (WAS 6 HOLES)
7/16 (REF)
1/2 (REF)
1/4 R
CUT OFF SHADED AREA

REWORK -11, -17 & -19 AS SHOWN

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO REMOVE RIVETS FROM .010 SKIN	IN F/D REVISED TRIM OF -11, -17 & -19; FOR -11 ADDED 1/4 R(2); FOR -19 ADDED 15/32, 1 1/4, & 1/4 R(2) DRILL #40 5 HOLES WAS 8 HOLES; FOR -17 ADDED 1/4 R(2) DRILL #40 (5 HOLES) WAS 6 HOLES	W 12/27

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE								
LM		LM 4(34) THRU	LM-15(45)	✓		-11 -17 -19		/	12/21/66 VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	12/22/66 STRESS GROUP	LIAISON ENGRG	12/27 PROJ ENGRG	~~CONF.~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S QUAD ~~IV~~ ANGLE SQUIBB DISCONNECT SUPPORT	LDW280-18223	B1

ISSUED BY G. BARNES/J. STRAROSCH X1392 SECTION VEH DFS & INT GROUP NO. 335 PL 35

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-18223 | EO NO. B2
CONTROL INFO NO. LDW280A-5168

IN M/B -13, N/A LDW280-54791 LM-4 THRU LM-15 1 REQD/MOD
S/B 2 REQD/MOD.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

2

REASON FOR EO: ADDITIONAL PART REQD FOR LINES SUPPORT

DESCRIPTION OF EO: I/I M/B -13 N/A LDW280-54791 LM-4(34) THRU LM-15(45) QUANT 2 REQD/MOD WAS 1 REQD/MOD.

GAEC EO RELEASE: FR 1/24/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-4(34)	THRU LM
		-15(45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQD

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JHS				[illegible]		[illegible]	[illegible]
DATE	1/23/67				1/24		1-24	1-24
6								

PRIORITY: C

DRAWING TITLE: ANGLE DS QIV SQUIBB DISC. SPT.

DRAWING NO.: LDW280-18223

EO NO.: B2

ISSUED BY V PADDEN X1392 SECTION STRUCT SYS GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18223

EO NO. B6

CONTROL INFO NO. LDW280B9491

IN MOD BLK FOR -15

ADDED N/A LDW280-60791 (1 REQD/MOD) LM10(40) THRU LM14 (44)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD3994 PK89 (5)

REASON FOR EO: GROUND CLIP REQD

DESCRIPTION OF EO: FOR -15 ADDED N/A LDW280-60791, REQMTS

GAEC EO RELEASE: JK 12/13/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU LM	
LM		14 (44)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REWORK | REQD SCRAP

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	12/5/69			12/5/69	12/10/69		12/10/69	Bowman 12/13/69

PRIORITY: C

DRAWING TITLE: CLIP D/S - ELECT LINES SUPPT

DRAWING NO. LDW280-18223

EO NO. B6

CDR-12-19-69

ISSUED BY DON RAGAS X86046 SECTION VDI GROUP NO. 280 PL 25

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NAS 9-1100

NR

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18223
EO NO. B7
CONTROL INFO NO. LM-5-22570

FOR -15 REMOVE ".127-.133 (#30 DRILL)
(4 HOLES)"

REWORK NOTE: FLUSH PLUG HOLES WITH MS20426AD4 RIVETS
IN EXISTING PARTS.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒ LCD 3994

REASON FOR EO: REQM'T TO PICK UP EXISTING HOLES ON UPPER DECK

DESCRIPTION OF EO: FOR -15 REMOVED ".127-.133 (#30 DRILL) (4 HOLES)."

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-11 (41) THRU LM-14 (44)	

DRAWING CHANGE REQD: ☒ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: ☒ REWORK ☐ SCRAP

APPROVED BY	ALW				KC	ALW		
DATE	5/21/70	5-28-70		5/28/70	5/22/70	5/21/70	5/21/70	5/22/70
	S/CAT	VDI ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	D.EO

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET ~ D/S ~ QUAD III SQUIBB DISCONNECT SUPPORT	LDW280-18223	B7

ISSUED BY LIAISON A. WILSON X86755 5/21/70 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00,1.10,2&3							INC EO A1 -ADDED SHEET 1.10	LM-4 THRU LM-15			J. BIANCHINO 1-21-69		
	2	1.00,2&3							INC EO A2						
	3	2&3							INC EO A3						

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY				
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18224	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18224 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54791	LM-4(34)	1 EA
PART NO. LDW280-18224-1,&-11		GAEC SCH NO. 50-2	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00			
REV	A	A	A		A			
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED -

LAST DASH NO. USED -15

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) ME-3A 1/23/? EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

DRAWN BY GENTILE 12/13/66

LAYOUT BY A. Reche 12/16/66

CHECKED BY C. GLASER 12-15-66

GR. LDR 12/16/66

V.D.I. J. Pusateri 12/16

STRUCT 12/16

STRUCT 12/16

WEIGHTS

RELIABILITY

PROJ ENGR 12-17

REL GROUP J. Fogliano 12/16/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE ~ BEAM PANEL
ELECTRICAL LINES SUPPORT ~ QUAD I

SIZE B

CODE IDENT NO. 26512

LDW280-18224 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77 1 12-65

CDR 1/6/67

01

NAS 9-1100

QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1	NAS697C08	E		NUT PLATE	STD PART						
A/R	MS20426AD3	E		RIVET	STD PART						
1	LDW280-18224-15	E		BRACKET	AL ALLOY SH	QQ-A-250/4	2024 T3	.032 X 2 X 2	NONE	88	
	LDW280-18224-11	E		BRACKET	AL ALLOY SH	QQ-A-250/4	2024 T3	.040 x 3 x 16	NONE	88	
	LDW280-18224-1	E		BRACKET ASSY					NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

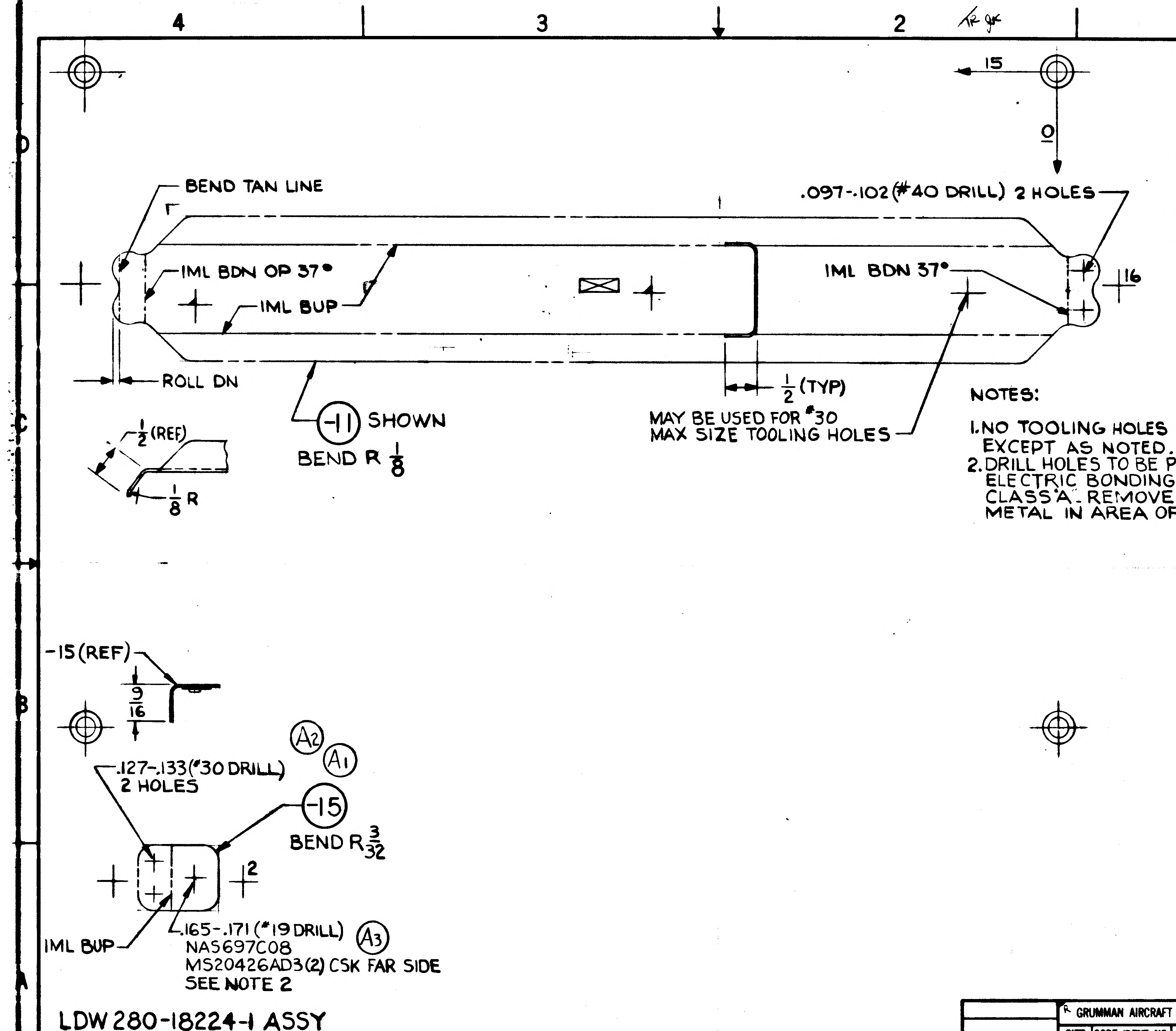
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18224
A
SCALE NONE
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100


4
3
2
1
15
10
BEND TAN LINE
.097-.102 (#40 DRILL) 2 HOLES
IML BDN OP 37°
IML BUP
IML BDN 37°
16
ROLL DN
-11 SHOWN
BEND R 1/8
1/2 (TYP)
MAY BE USED FOR #30
MAX SIZE TOOLING HOLES
1/2 (REF)
1/8 R
-15 (REF)
9/16
A2
A1
.127-.133 (#30 DRILL)
2 HOLES
-15
BEND R 3/32
2
IML BUP
.165-.171 (#19 DRILL)
A3
NAS697C08
MS20426AD3 (2) CSK FAR SIDE
SEE NOTE 2
D
C
B
A

LDW 280-18224-1 ASSY

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED USE BOTH SIDES IF NECESSARY	✓
TOLERANCE ON LOFTED DELINEATIONS 15 ± 1/32	✓
INSTALL RIVETS IN ACCORDANCE WITH LSP 14-15302.	✓

LDW280-18224 A

NOTES:

1. NO TOOLING HOLES PERMITTED IN PART EXCEPT AS NOTED.
2. DRILL HOLES TO BE PREPARED FOR ELECTRIC BONDING PER LSP 14-13302 CLASS 'A'. REMOVE FINISH TO BARE METAL IN AREA OF BOND.

LDW280-18224 A

	GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
LM	SIZE C	CODE IDENT NO. 26512	LDW280-18224	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2

NAS 9-1100

THIS IS AN
ORIGINAL E.O,

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1524
CONTROL INFO NO. LDW 280B 8108

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
LDW280-18466 ✓	SEE DWG	A6	
✓ 224 ✓		B2	
225		A2	
236		C2	
238		A3	
265		A4	
266		A5	
267		A4	
268		A4	
LDW280-18271	SEE DWG	A6	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 29

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY	PBT				M		Bauman	
DATE	7-29-69			7/31/69	8/2/69		8/8/69	8-9-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1524

8-7-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18224

EO NO. B3

CONTROL INFO NO. LDW280 B8998

IN MOD BLK FOR -1 & -11 N/A LDW280-54791

RESTRICT EFF LM4 (34) THRU LM 9 (39)

WAS

LM 4 (34) THRU LM-14 (44) & LTA 11 (23)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994- PK89 (5)

REASON FOR EO: NEW INSTL REQD FOR LMMP

DESCRIPTION OF EO: IN MOD BLK FOR -1 & -11 N/A LDW280-54791 RESTRICTED EFF LM4 THRU LM9, WAS LM4 THRU LM14 LTA 11 (23).

GAEC EO RELEASE: JK 11/20/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10 (40)	
LM		THRU 14 (44)	
		LTA 11 (23	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-1

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
	VDI				N.M			
DATE	11-21-69			11/21/69	11/22/69		11/22/69	11-24-69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S - BEAM PANEL - ELECT SUPT	LDW280-18224	B3

CDR 112669

ISSUED BY DON RAGAS X86046 SECTION VDI GROUP NO. 280 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1381
CONTROL INFO NO. LDW280B7425

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18223 ✓	B3	SEE DWG
-18224 ✓	B1	↑
-18225	A1	
-18236	C1	
-18238	A2	
-18265	A3	
-18266	A4	
-18267	A3	
-18268	A3	↓
LDW280-18271	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3587	PKG 54 PG. 2	CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: (2) SK 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG	GOVT
APPROVED BY	JJ			RJ	WH		JP	
DATE	4/1/69			4-2-69	4/5/69		4/9/69	4/22/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1381

052869 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18225

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-15(45)	2 EA
↑	↑	LM-14(44)	2 EA
		LM-13(43)	2 EA
		LM-12(42)	2 EA
		LM-11(41)	2 EA
		LM-10(40)	2 EA
		LM-9(39)	2 EA
		LM-8(38)	2 EA
		LM-7(37)	2 EA
		LM-6(36)	2 EA
↓	↓	LM-5(35)	2 EA
LM	LDW280-54791	LM-4(34)	2 EA

PART NO. LDW280-18225-11 & -13 | GAEC SCH NO. 50-Z

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH										
SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REL & INFO		
LAST DASH NO. USED	-13	PRIM NO. 207	FR (001) MPIH 1/7/7	EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 | LINE ITEM *1 | DOCUMENTATION TYPE II

DRAWN BY	P.CAPPADORO 12-15-66	RELIABILITY	
LAYOUT BY	J. LANG		
CHECKED BY	EG 12-21-66		
GR LEADER	1/4/66		
VEH DES INT	1/4/66		
STRUCTURES	WJH 1/6/66	PROJ ENGR	R.M. Carpes 1-6-67
STRUCTURES	1/6/66	REL GROUP	Pagliaro 1/7/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE ~ BEAM PANEL
ELECTRICAL LINES SUPT ~ QUAD IV

SIZE B | CODE IDENT NO. 26512 | LDW280-18225
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDE - 1/6/66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18225-13	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 × 2 × 2	NONE	88	
		LDW280-18225-11	E	BRACKET	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 × 3 × 11	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18225

SCALE NONE

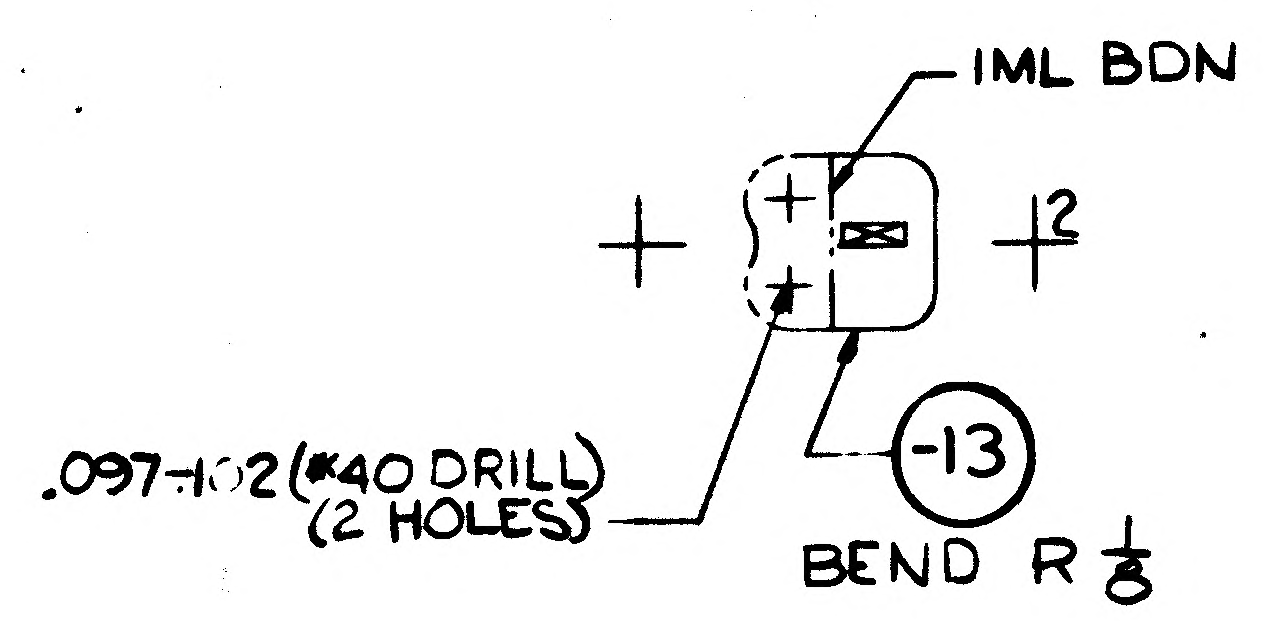
SHEET 2.00

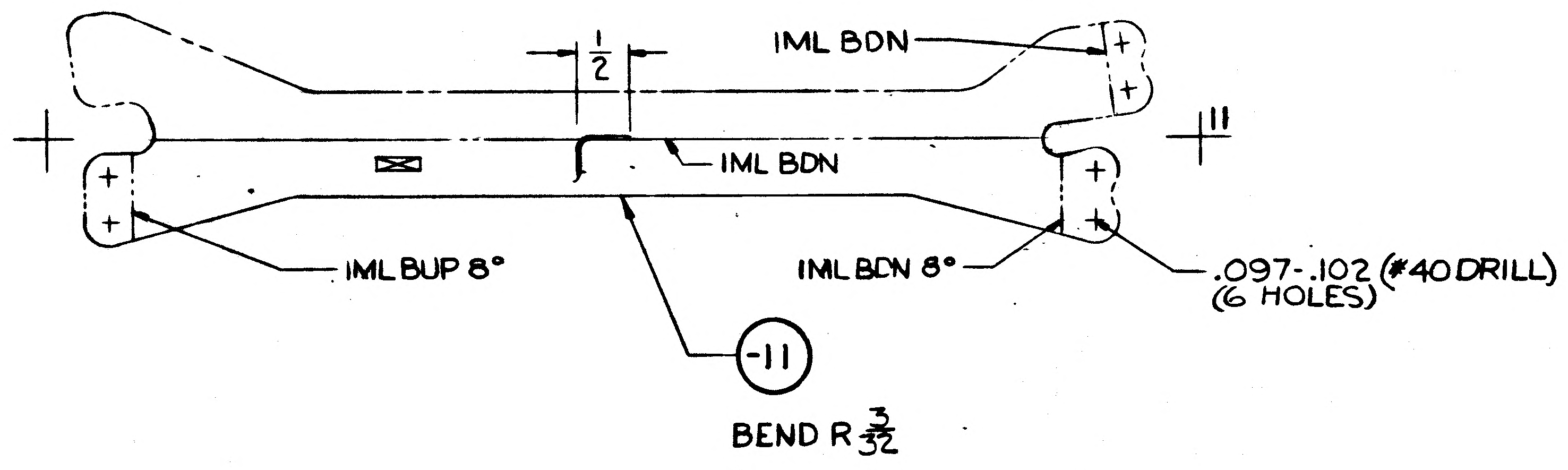
ENG 77.2 7-65

01

NAS 9-1100

LDW280-18225





NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	D	26512	LDW280-18225
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1381
CONTROL INFO NO. LDW280B7425

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18223 ✓	B3	SEE DWG
-18224 ✓	B1	
-18225 ✓	A1	
-18236	C1	
-18238	A2	
-18265	A3	
-18266	A4	
-18267	A3	
-18268	A3	
LDW280-18271	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: SK 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
				PJF	WH			
DATE	4/1/69			4-2-69	4/8/69		4/9/69	4/22/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1381

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

E. INEERING ORDER

DWG. NO. LEO 280

EO NO. 1767

CONTROL INFO NO. LDW280B8996

IN MOD BLK FOR THE FOLLOWING DWGS ; ALL DASH NO'S (*)

N/A LDW280-54791 RESTRICT EFF LM 4 (34) THRU 9 (39)
WAS
LM 4 (34) THRU 14 (44)
& LTA 11(23)

DWG NO	TITLE	CHG. NO.
LDW280 -17998-*	SEE DWG	E4
✓ -18223-*		B5
✓ -18225-*		A3
-18457-*		A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 - PK 89	(5)

REASON FOR EO: BRACKETS NOT REQD FOR CMMP

DESCRIPTION OF EO: IN MOD BLK FOR (*) N/A LDW280-54791 RESTRICTED EFF LM 4(34) THRU LM 9(39) WAS LM 4(34) THRU 14(44) LTA 11(23)

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40) THRU 14(44)	
LM		LTA 11(23)	
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
					NM			
DATE	11-21-69			11/21/69	11/21/69		11/22/69	11-24-69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1767

CDR 112669

ISSUED BY DON RAGAS X86046 SECTION VD1 GROUP NO. 280 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.,

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1524
CONTROL INFO NO. LDW 280B 8108

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18466	SEE DWG	A6
224		B2
225		A2
236		C2
238		A3
265		A4
266		A5
267		A4
268		A4
LDW280-18271	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 29

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SAB 8-6-69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	PBT				N			Bauman
DATE	7-29-69			7/31/69	8/1/69		8/1/69	8-9-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1524

8-7-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18226 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LM	LDW280-25677	LTA-5(15)	2
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18226-11		GAEC SCH NO. 50	

WORK PACKAGE FUNCTION NO 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO A

PRIM NO. LE(001)

470 MP-14 A-2-1-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.010 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY T. FREDA 1-24-67

LAYOUT BY DUGAN

CHECKED BY GB ARATOLI 1-26-67

~~GRP LEADER~~

VEH DES INT 1/27/67

STRUCTURE

STRUCTURE

WEIGHTS

RELIABILTY

PROJ ENGR (W) 1-31-67

REL GROUP 2/1/67

(12)

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE ENGINE COMPT
PURGE LINE SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18226 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00, 3.00						EO A1	EC A1 INITIAL DRAWING RELEASE PART MADE PER EO Ⓡ	LTA-5(15)	NOT	REQD	T.FREDA 24 JAN 7A	1-31-67	

CHG APPROVED	LTR	~~GROUP LDR~~	VEH.DES.INT.	STRUCTURES	STRUCTURE	WEIGHTS	RELIABILITY
	A		1-31-67	1/31/67			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18226	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18226-11	E		BRACKET	AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE # 734V x 1 1/2	NONE	76	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						76	ALCDINE	LSP-14-9010

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18226	A

SCALE NONE

SHEET 2.00

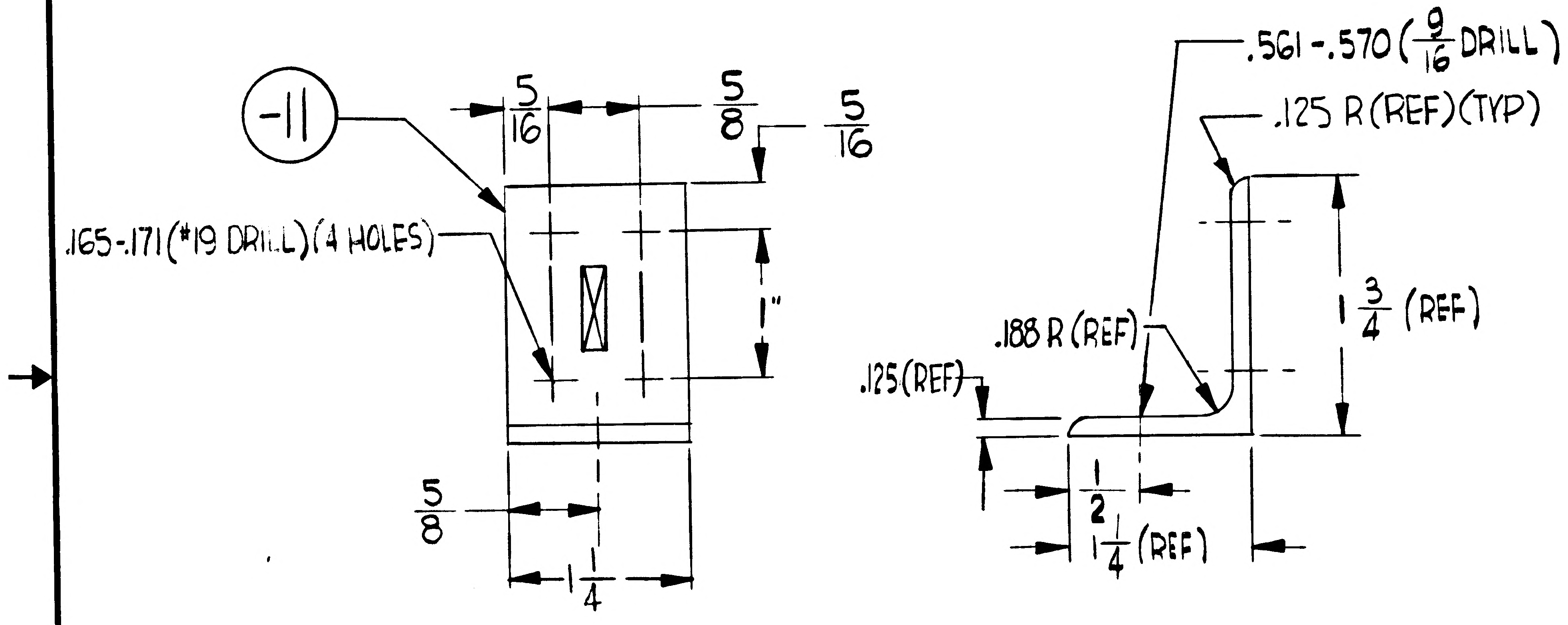
ENG 77.2 5-64

01

NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓



-11
5/16
5/8
5/16
.165-.171 (#19 DRILL) (4 HOLES)
1"
5/8
1 1/4
.561-.570 (9/16 DRILL)
.125 R (REF) (TYP)
.188 R (REF)
.125 (REF)
1 3/4 (REF)
1/2
1 1/4 (REF)

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18226	A
SCALE FULL		SHEET 3.00	

ENG 73.1 6-64

01

NAS 9-1100

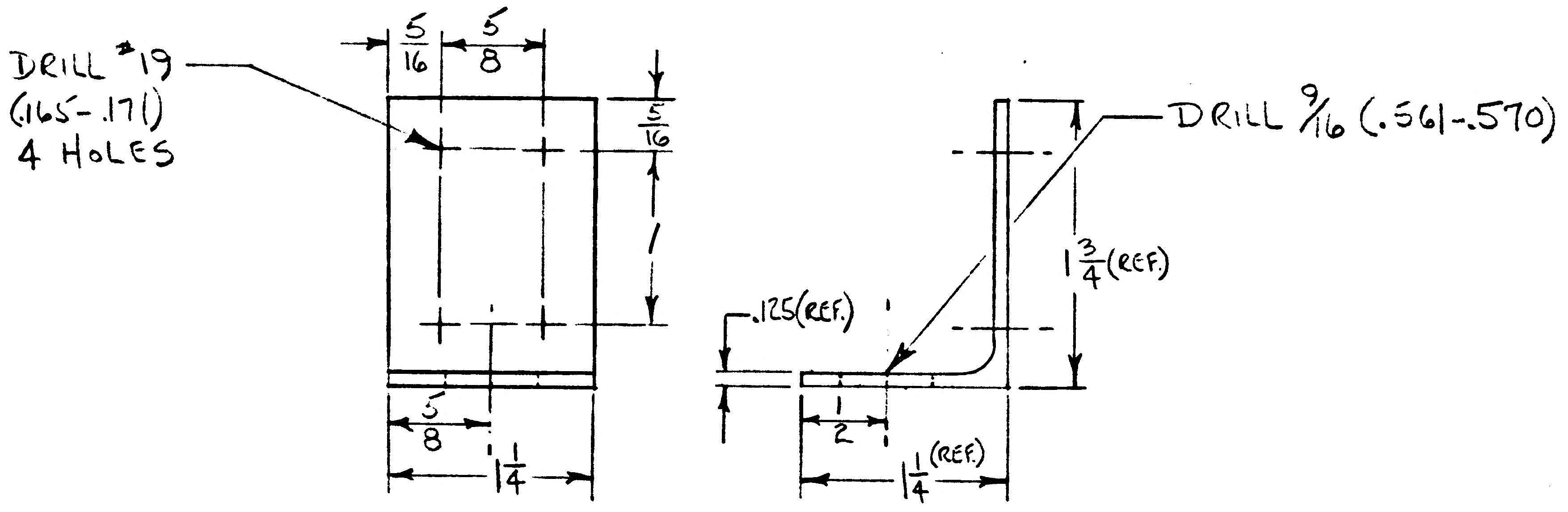
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW 280-18226		EO NO. A1
CONTROL INFO NO. LDW 82-2579		

* DWG. NOT MADE



CONTRACT NO. NAS 9-1100
DOC. TYPE II
PRIMARY NO. 470
LINE ITEM 009

LDW 280-18226-11 (2 REQD.)
MAKE FROM EXT. DIE #734V (2024-T351) - FINISH 76
N/A LDW 280-25677

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE BRACKET FOR ENGINE PURGE LINES ON LTA-5	EO A1 INITIAL DRAWING RELEASE PART MADE PER E.O.	C 12/21 50

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	*		NOT	REQD	DATE					12-6-66	12-9-66	12/9/66
LM		LTA-5 (15)		REVISE DWG	RECORD EO	REWORK	SCRAP	7		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S - ENG. COMP. - PURGE LINE SUPPORT	LDW 280-18226	A1

ISSUED BY P. DUGAN X5214 SECTION Del. Engg /WSTF-ASC GROUP NO. 862 PL 82

01

NAS 9-1100

LDW280-18228 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28646	LM-15(45)	1
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
		LM-3(33)	
		LM-2(32)	
LM	LDW280-28646	LM-1(31)	1
PART NO. LDW280-18228-15		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28649	LM-15(45)	1
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
		LM-3(33)	
		LM-2(32)	
LM	LDW280-28649	LM-1(31)	1
PART NO. LDW280-18228-13		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28644	LM-15(45)	1 EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
		LM-3(33)	
		LM-2(32)	
LM	LDW280-28644	LM-1(31)	1 EA
PART NO. LDW280-18228-11,12		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED A-A

LAST DASH NO. USED -15

GRUMMAN REL INFO A

PRIM NO.	LE(001)		EMF
307	MP-14	A-1-26-7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

DRAWN BY	JAEGGI 1/6/67	RELIABILITY	
LAYOUT BY	CHRISTINA		
CHECKED BY	H. Rogalevicz 1-11-67		
~~GR LDR~~ WSE			
VDI	1/21/67		
STRUCTURE	1/23/67	PROJ ENGR	R. M. Carlee (E) 1-23-67
STRUCTURE	1/23/67	REL GROUP	1-25-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD
DESCENT STAGE-INTERSTAGE
PROTECTION

SIZE B | CODE IDENT NO. 26512 | LDW280-18228 | A

SCALE NONE | SHEET 1.00 OF 4

ENG 77 1 12-65

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1	[illegible],1.10 2.00,3.00					✓	EO A1	EO A1 INITIAL DRAWING RELEASE. PARTS MADE PER E.O. WCG HR	LM-1 THRU LM-15	NOT	REQD	JAEGGI 1-7-67	[illegible]	1-25-67

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18228	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

C.L.	QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C		LDW280-18228-15	E		SHIELD		SEE NOTE 1			NONE	NOTE 3	
C		-13	↕		↕		↕			↕	↕	
C		-12	↕		↕		↕			↕	↕	
C		LDW280-18228-11	E		SHIELD		SEE NOTE 1			NONE	NOTE 3	

C.L.-CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18228	A
SCALE NONE		SHEET 2.00	

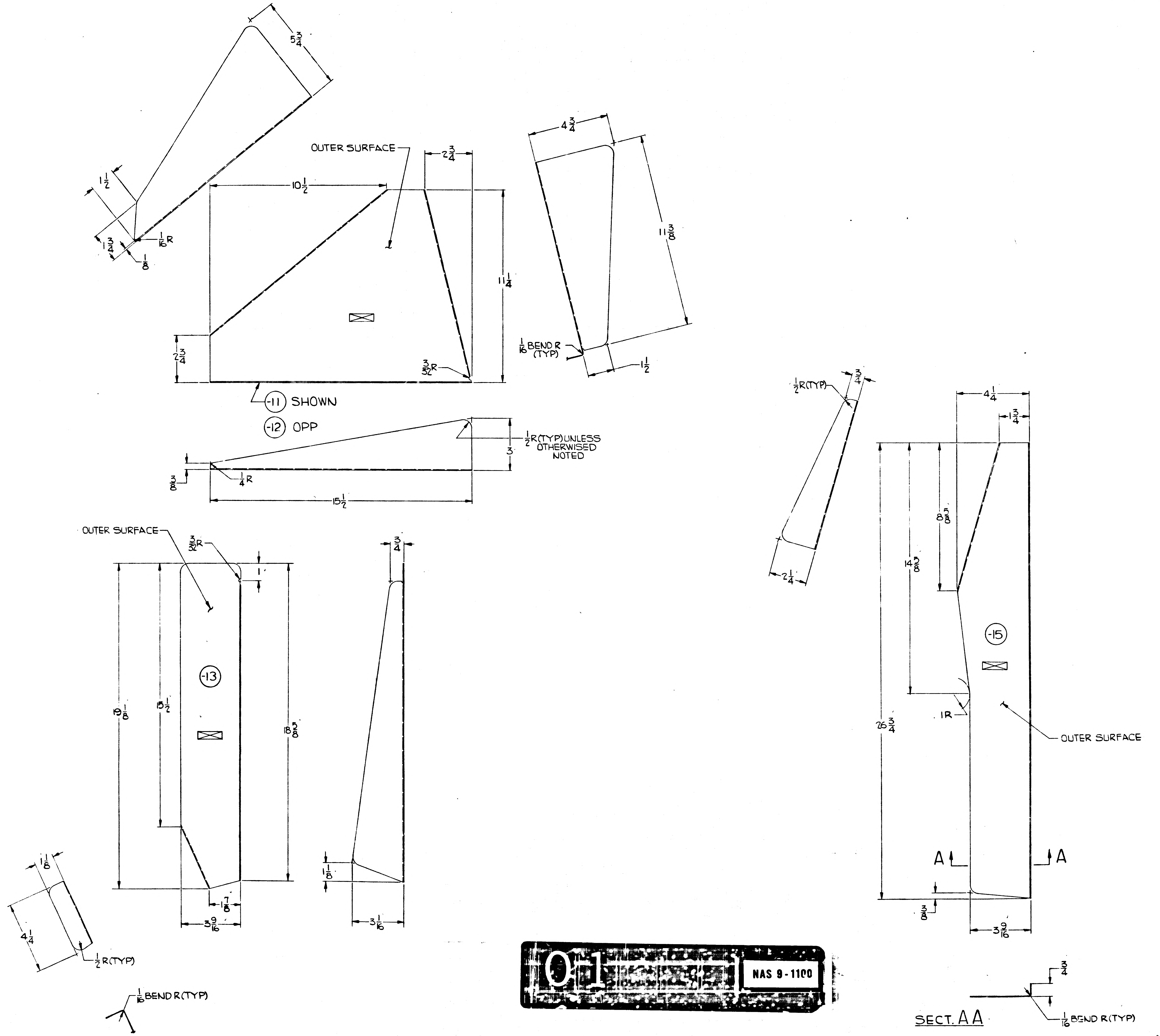
ENG 77.2 5-64

01

NAS 9-1100

NOTES:

1. FABRICATE INCONEL IN ACCORDANCE WITH LPC280-19. (MAKE FROM .00125 THICK INCONEL 600 FOIL PER AMS5540E.)
2. NO TOOLING HOLES PERMITTED IN PARTS.
3. PAINT OUTER SURFACE PER LPC 280-5.



5 3/4
1 1/2
1 3/4
1/8
1/16 R
OUTER SURFACE
10 1/2
2 3/4
11 1/4
2 3/4
3/32 R
-11 SHOWN
-12 OPP
4 3/4
11 3/8
1/16 BEND R (TYP)
1 1/2
1/2 R (TYP) UNLESS OTHERWISED NOTED
3
3/8
1/4 R
15 1/2
OUTER SURFACE
3/32 R
1
19 1/8
15 1/2
18 5/8
-13
1 7/8
3 9/16
3/4
1 1/8
3 1/16
1 1/8
4 1/4
1/2 R (TYP)
1/16 BEND R (TYP)
1/2 R (TYP)
3/4
2 1/4
4 1/4
1 3/4
8 5/8
14 3/8
-15
1R
26 3/4
OUTER SURFACE
A
A
3/8
3 9/16
3/4
SECT. AA
1/16 BEND R (TYP)

01

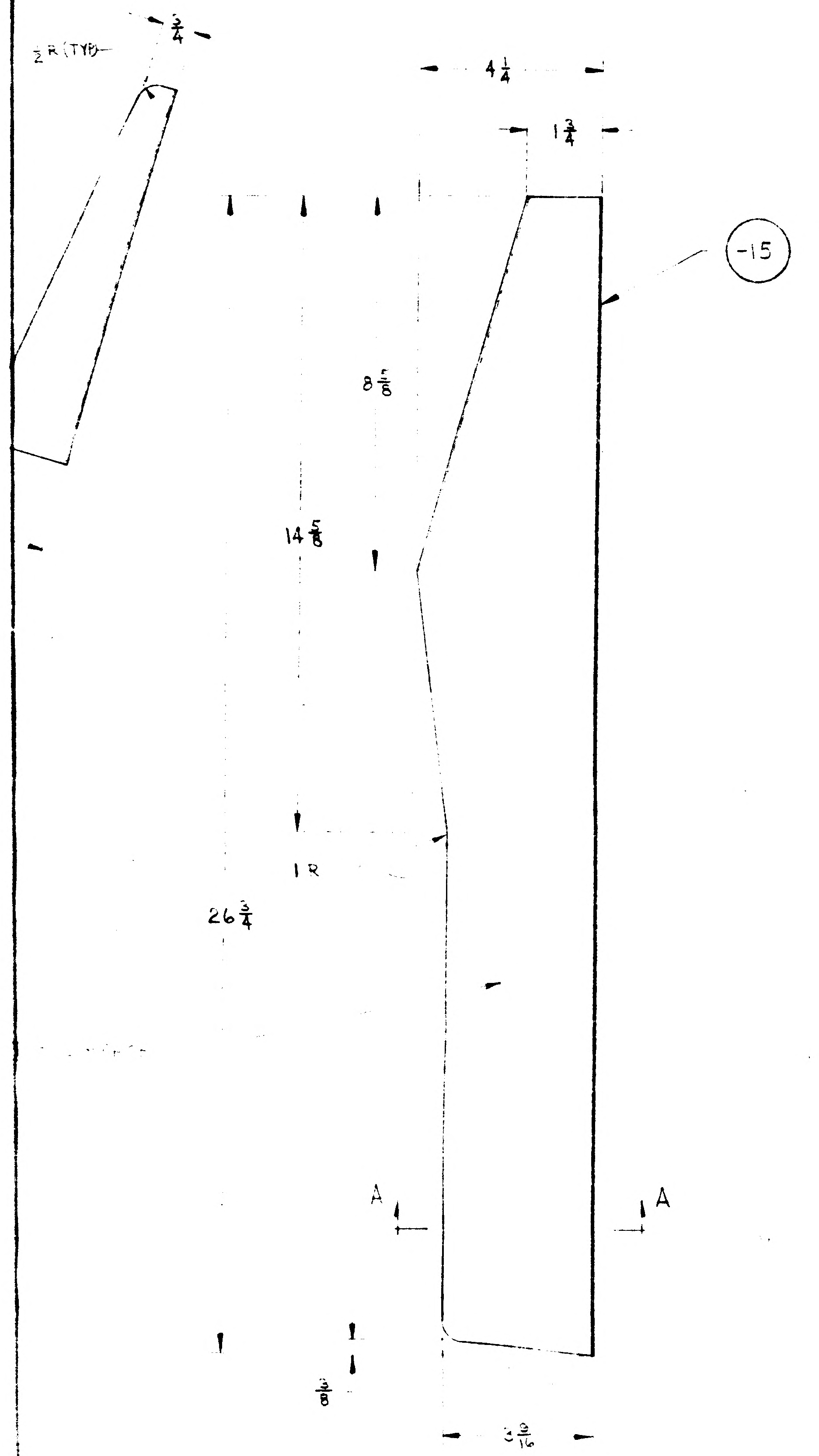
NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL STD 10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

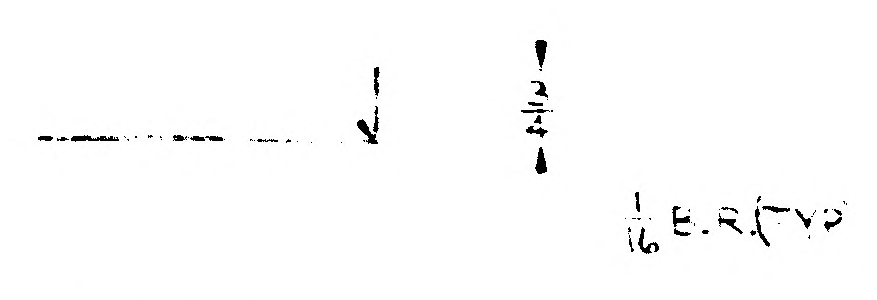
	GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
	SIZE E	CODE IDENT NO. 26512	LDW280-18228	A
MODEL OR END ITEM	SCALE HALF		SHEET [illegible]	

LDW280-18228

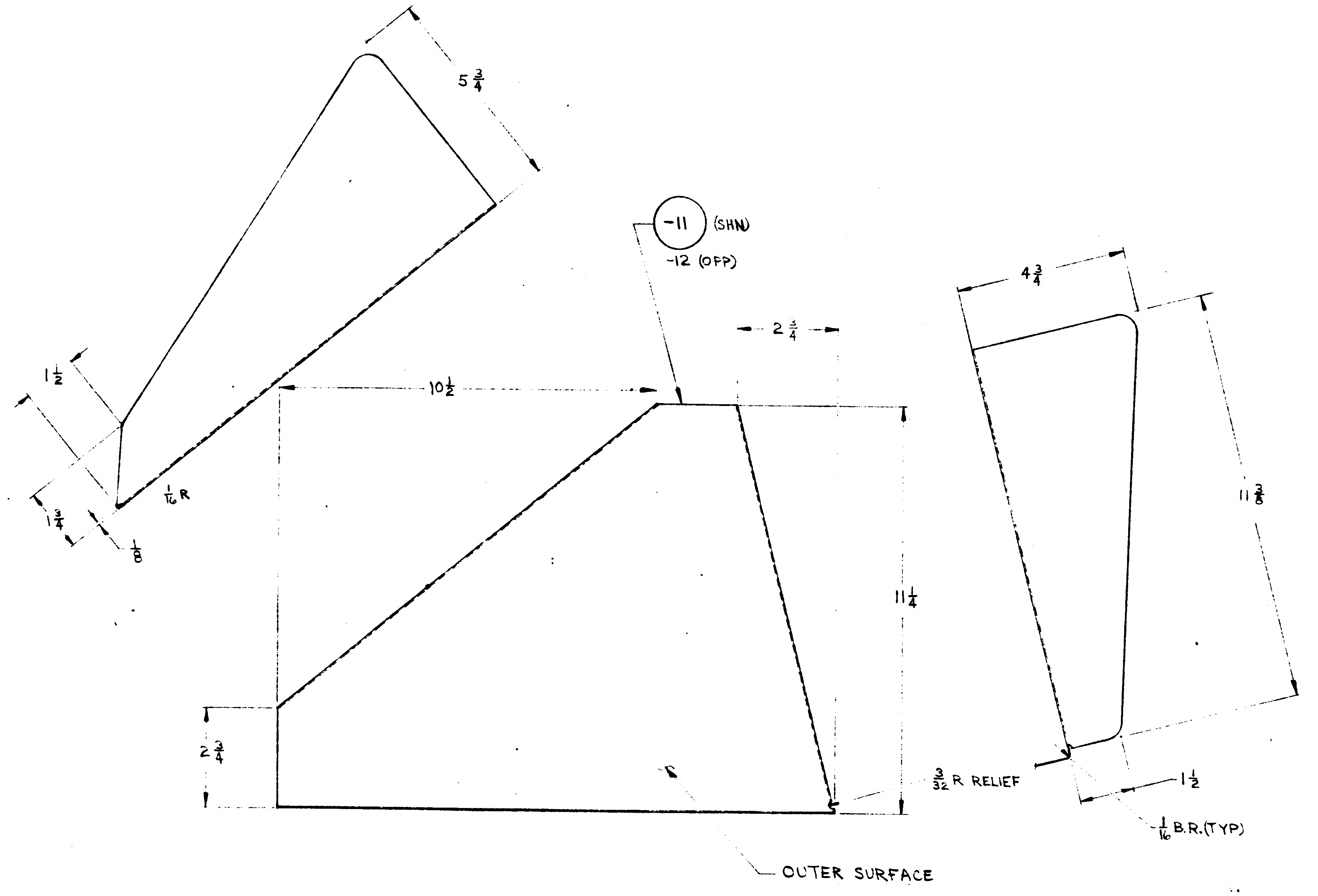
LDW280-18228



LDW 280-18228-15
SCALE: HALF

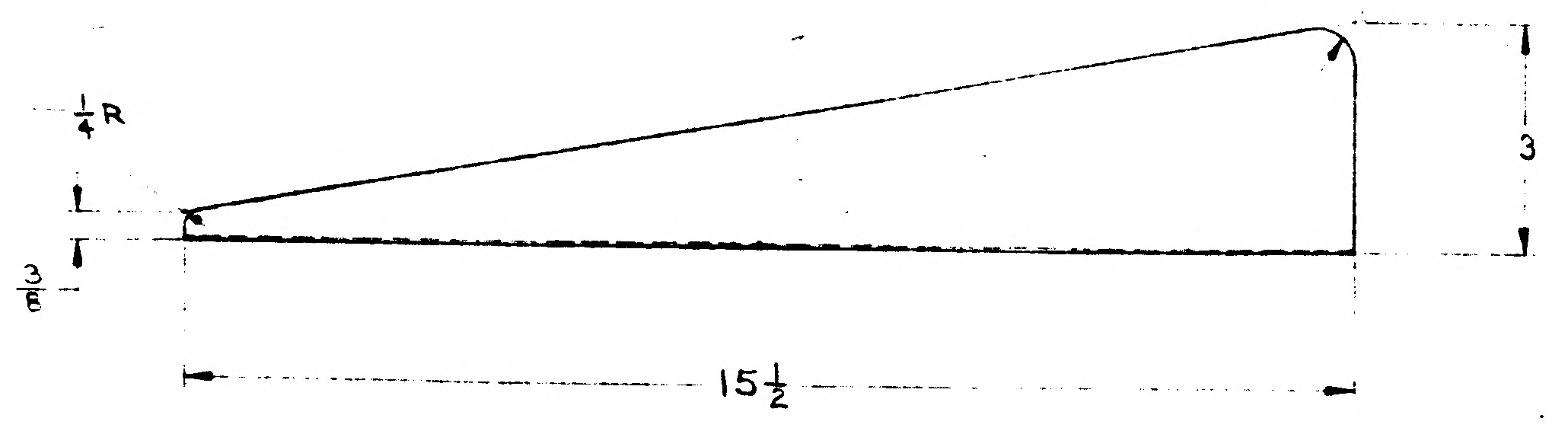


SECT A-A



LDW 280-18228-11 (SHN)
LDW 280-18228-12 (OPP)
SCALE: HALF

1/2 R (TYP) UNLESS OTHERWISE NOTED



C.L.	PART NO.	I&T	DESCRIPTION	MATERIAL	PROCESS SYM	FINISH NO.
C	LDW280-18228-11	E	SHIELD	MAKE FROM .00125 THICK INCONEL 600 FOIL PER AMS 5540E (SEE NOTE *1)	NONE	SEE NOTE *3
C	LDW280-18228-12	E	SHIELD		NONE	SEE NOTE *3
C	LDW280-18228-13	E	SHIELD		NONE	SEE NOTE *3
C	LDW280-18228-15	E	SHIELD		NONE	SEE NOTE *3

LM	LDW280-28644	LM-1(31)-LM-15(45)	1 EA
MODEL	NEXT ASSY	MODULE	REQD/MOD
PART NO. LDW 280-18228-11, -12			

LM	LDW280-28646	LM-1(31)-LM-15(45)	1
MODEL	NEXT ASSY	MODULE	REQD/MOD
PART NO. LDW 280-18228-15			

LM	LDW280-28649	LM-1(31)-LM-15(45)	1
MODEL	NEXT ASSY	MODULE	REQD/MOD
PART NO. LDW 280-18228-13			

NOTE:
1. FABRICATE INCONEL IN ACCORDANCE WITH LPC 280-19
2. NO TOOLING HOLES PERMITTED IN PARTS
3. PAINT OUTER SURFACE PER LPC 280-5

C.L. = CLEANLINESS LEVEL PER LSP14-0011

CONTRACT NO. NAS-9-1100 LINE ITEM I
DOCUMENTATION TYPE II PRIM NO. 207

*DRAWING NOT MADE

DETAIL SPEC REQD		CLASS II ENGRG CHG	✓	CLASS I ENGRG CHG	CONTROL INFO NO.

REASON FOR EO: PLUME IMPINGEMENT PROTECTION REQD FOR INTERSTAGE FITTINGS (LCR-320)

DESCRIPTION OF EO: E.O. A1 INITIAL DRAWING RELEASE; PARTS MADE PER EO

GRUMMAN EO RELEASE

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	
		LM-15(45)	

REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	BY	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	GOV'T
NOT REQD		NOT REQD			VDI							

PRIORITY: C

DRAWING TITLE: SHIELD DESCENT STAGE - INTERSTAGE - PROTECTION

ENGINEERING ORDER
DRAWING NO.: LDW280-18228
EO NO: A1

V.A. CHRISTINA
ISSUED BY J STRAKOSCH SECTION VDI x1153 GROUP NO. 335 PL 35

CODE IDENT NO 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32 3 REV 3-65

THIS IS AN ORIGINAL DWG

02/02 NAS 9-1100

ENG 33.2 REV 3-66

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 801
CONTROL INFO NO. LDW280A9696

FOR THE NOTED DWGS, REVISE EFFECTIVITY AS SHOWN BELOW:

DWG NO.	DASH NO. ▲	DWG TITLE	EFF (NOW) ■	EFF (WAS) ●	CHANGE NO.
LDW280P18227	-11	SKIN D/S-INTERSTAGE-PROTECTION	LM-1(31) & LM-2(32)	LM-1(31) THRU LM-15(45)	
↓	-12	↓	↓	↓	
↓	-13	↓	↓	↓	B1 ✓
LDW280P18227	-15	SKIN D/S-INTERSTAGE-PROTECTION	↓	↓	
LDW280-18228	-11	SHIELD D/S-INTERSTAGE-PROTECTION	↓	↓	
↓	-12	↓	↓	↓	
↓	-13	↓	↓	↓	B1 ✓
LDW280-18228	-15	SHIELD D/S-INTERSTAGE-PROTECTION	↓	↓	
LDW280-18229	-11	FOIL D/S-INTERSTAGE-PROTECTION	↓	↓	
↓	-12	↓	↓	↓	B1
↓	-13	↓	↓	↓	
LDW280-18229	-15	FOIL D/S-INTERSTAGE-PROTECTION	LM-1(31) & LM-2(32)	LM-1(31) THRU LM-15(45)	

01
NAS 9-1100

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 1244

REASON FOR EO
TO PROVIDE FOR FITH SHIELD
(PARTS NOT REQ'D ON LM-3 & UP)

DESCRIPTION OF EO
RESTRICTED DASH NO. (▲) TO (■) WAS (●).

GAEC EO RELEASE: JK 11/18/67

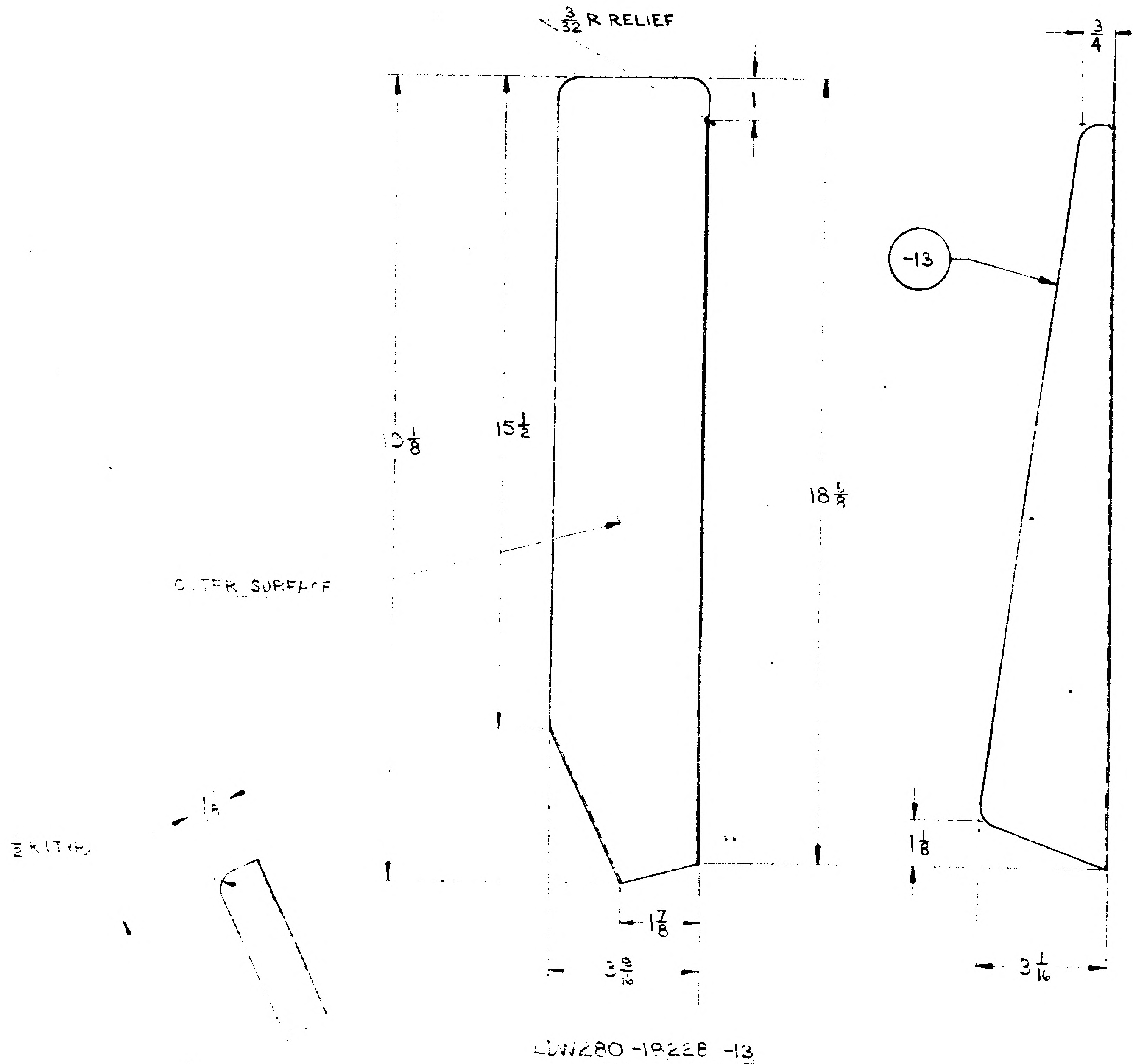
MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33) THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

		V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								MRB	
DATE	D	11/8/67			11-9-67	11/10/67		11/9/69	11-17-67

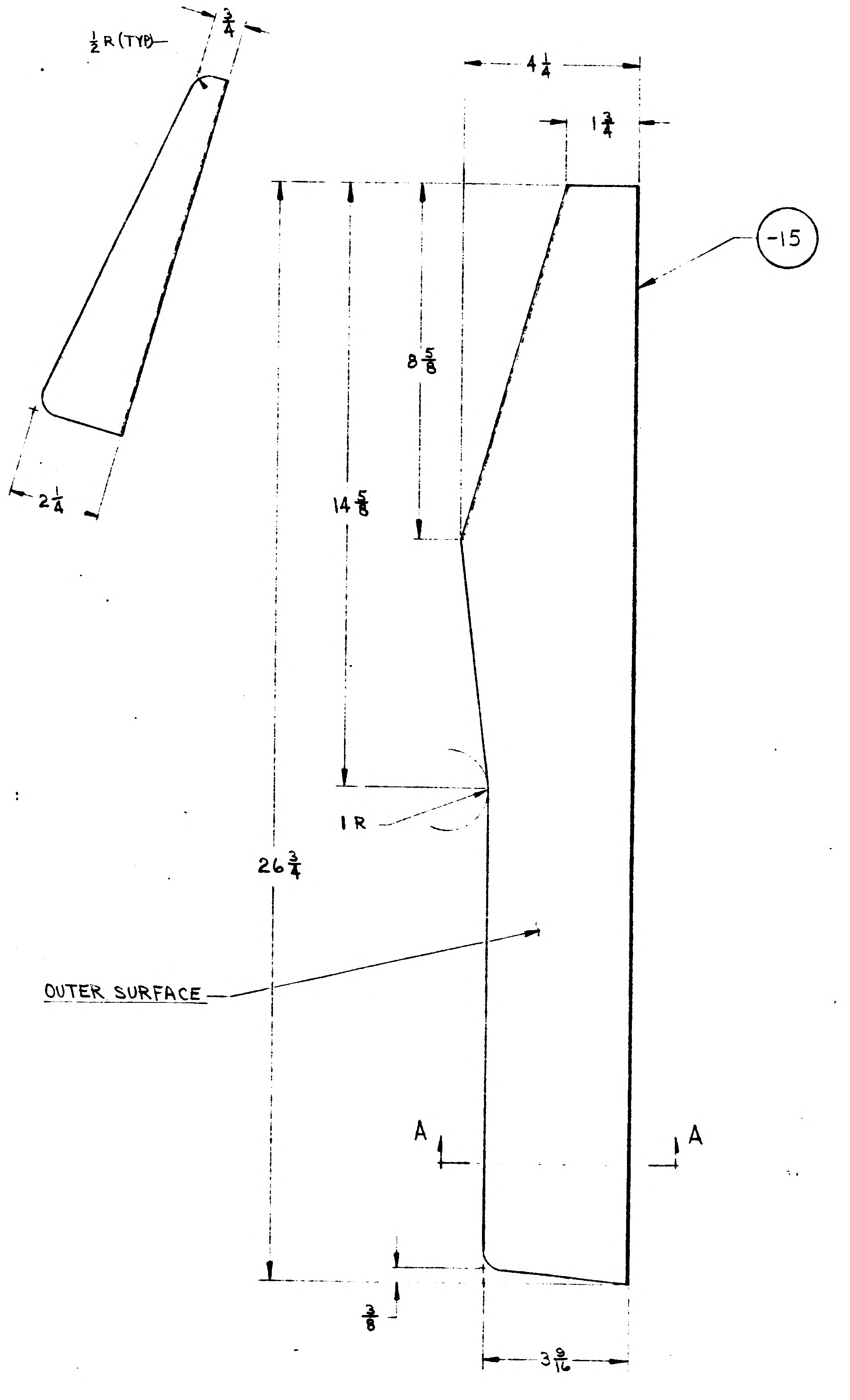
PRIORITY: C
DRAWING TITLE: AS NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 801

CDR 11/17/67
ISSUED BY DON THOMAS / P. THORJUSEN SECTION V.D.I. x1153 GRC JP NO. 335 PL 25


3/32 R RELIEF
1
13 1/8
15 1/2
18 5/8
OUTER SURFACE
1/2 R(TYP)
1 1/8
1 7/8
3 9/16
3/4
-13
1 1/8
3 1/16

LDW280-18228-13
SCALE: HALF

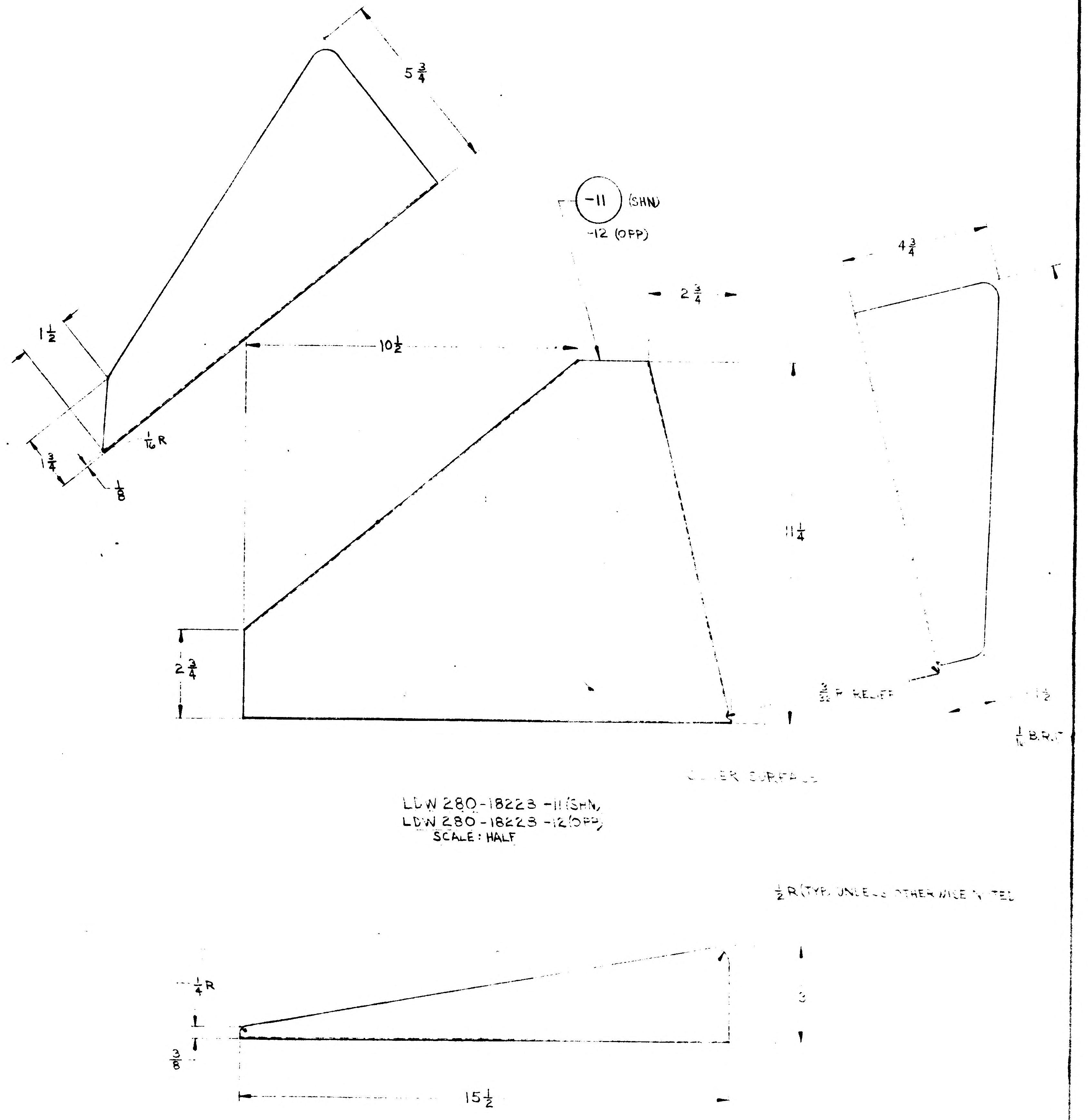
1/16 B.R(TYP)


1/2 R(TYP)
3/4
2 1/4
4 1/4
1 3/4
-15
8 5/8
14 5/8
1 R
26 3/4
OUTER SURFACE
A
A
3/8
3 3/16

LDW280-18228-15
SCALE: HALF

1/2
1/16 B.R(TYP)

SECT A-A


5 3/4
1 1/2
1/16 R
1 3/4
1/8
-11 (SHN)
-12 (OPP)
10 1/2
2 3/4
4 3/4
11 1/4
2 3/4
3/32 R RELIEF
1 1/2
1/16 B.R.
OUTER SURFACE
1/2 R(TYP UNLESS OTHERWISE NOTED
1/4 R
3/8
3
15 1/2

LDW 280-18223-11(SHN)
LDW 280-18223-12(OPP)
SCALE: HALF

01/02 NAS 9-1100

LDW280-18229 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28646	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
		LM-4(34)	2
		LM-3(33)	2
		LM-2(32)	2
LM	LDW280-28646	LM-1(31)	2
PART NO. LDW280-18229-15		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28649	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
		LM-4(34)	2
		LM-3(33)	2
		LM-2(32)	2
LM	LDW280-28649	LM-1(31)	2
PART NO. LDW280-18229-13		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28644	LM-15(45)	2 EA
		LM-14(44)	2 EA
		LM-13(43)	2 EA
		LM-12(42)	2 EA
		LM-11(41)	2 EA
		LM-10(40)	2 EA
		LM-9(39)	2 EA
		LM-8(38)	2 EA
		LM-7(37)	2 EA
		LM-6(36)	2 EA
		LM-5(35)	2 EA
		LM-4(34)	2 EA
		LM-3(33)	2 EA
		LM-2(32)	2 EA
LM	LDW280-28644	LM-1(31)	2 EA
PART NO. LDW280-18229-11 & -12		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		2.01		3.00		
REV	A		A		A		A		
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A			
LAST DASH NO. USED	-15	PRIM NO.	E(001)		EMF
		207	MP-14	1-25-7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.032 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 LINE ITEM 1 DOCUMENTATION TYPE II

DRAWN BY	L.BITTNER 9-27-66	RELIABILITY	
LAYOUT BY	V.A.CHRISTINA		
CHECKED BY	EG 1-9-67		
~~GROUP LEADER~~			
VEH DES INT			
STRUCTURES	1/23/67	PROJ ENGR	R M Carbee 1-23-67
STRUCTURES	1/23/67	REL GROUP	1/25/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL
DESCENT STAGE - INTERSTAGE
PROTECTION

SIZE	CODE IDENT NO.		
B	26512	LDW280-18229	A
SCALE	NONE	SHEET 1 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

CL	QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C		LDW280-18229-15	E		FOIL	SEE	NOTE 4			NONE	NONE	
C		LDW280-18229-13	E		FOIL	SEE	NOTE 4			↕	↕	
C		LDW280-18229-12	E		FOIL	SEE	NOTE 4					
C		LDW280-18229-11	E		FOIL	SEE	NOTE 4			NONE	NONE	

CL - CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18229	A

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1,2,2.01,3					✓	E.O. A1	INITIAL DRAWING RELEASE PARTS MADE PER E.O. EG	NOTED	NOT	REQD	BITTNER 12-27-66	RMC	1/24

CHG APPROVED											
LTR	~~GROUP L~~DR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
A		1/20/67	WJN 1/23/67								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18229	A
SCALE NONE			SHEET 2.01

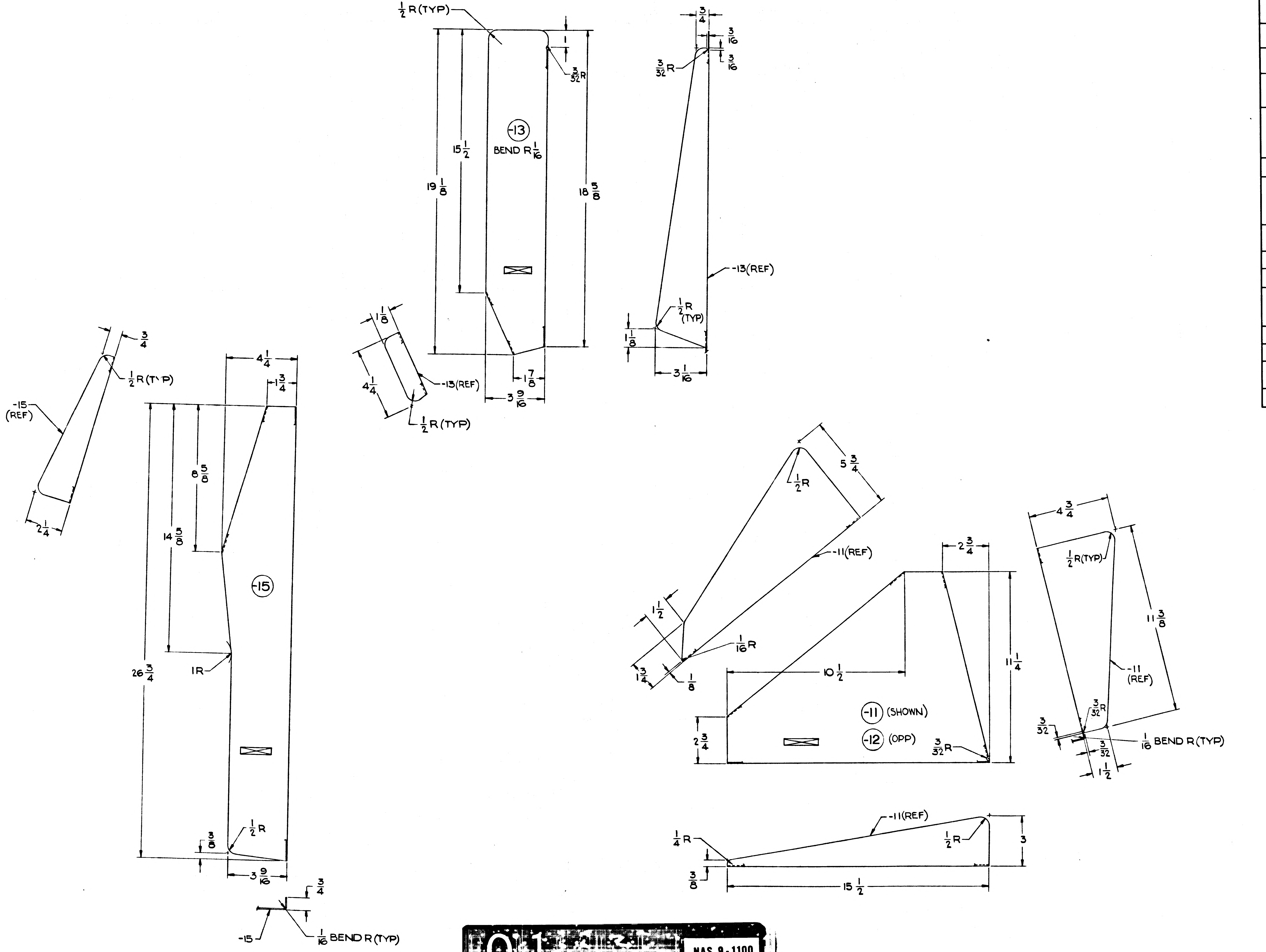
ENG 77.16 3-66

01

NAS 9-1100

NOTES
1. FABRICATE NICKEL FOIL IN ACCORDANCE WITH LPC 280-19
2. NO TOOLING HOLES PERMITTED IN PARTS
3. NICKEL FOIL SHALL BE RANDOM WRINKLED BEFORE N/A
4. MAKE FROM .0005 THICK, BRIGHT ROLLED NICKEL FOIL COMMERCIALLY PURE (INCO 200 OR EQUIV)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .008 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS NO ALLOWANCES FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL STD 10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	



1/2 R(TYP)
1
3/32 R
-13
BEND R 1/16
15 1/2
19 1/8
18 5/8
1 7/8
3 9/16
3/4
3/16
3/16
3/32 R
-13(REF)
1/2 R (TYP)
1 1/8
3 1/16
1 1/8
4 1/4
-13(REF)
1/2 R(TYP)
3/4
1/2 R(TYP)
-15 (REF)
2 1/4
4 1/4
1 3/4
8 5/8
14 5/8
-15
26 3/4
1R
1/2 R
3/8
3 9/16
3/4
-15
1/16 BEND R (TYP)
5 3/4
1/2 R
-11(REF)
1 1/2
1/16 R
1 3/4
1/8
2 3/4
11 1/4
10 1/2
-11 (SHOWN)
-12 (OPP)
2 3/4
3/32 R
4 3/4
1/2 R(TYP)
11 3/8
-11 (REF)
3/32 R
3/32
3/32
1 1/2
1/16 BEND R (TYP)
-11(REF)
1/4 R
1/2 R
3
3/8
15 1/2

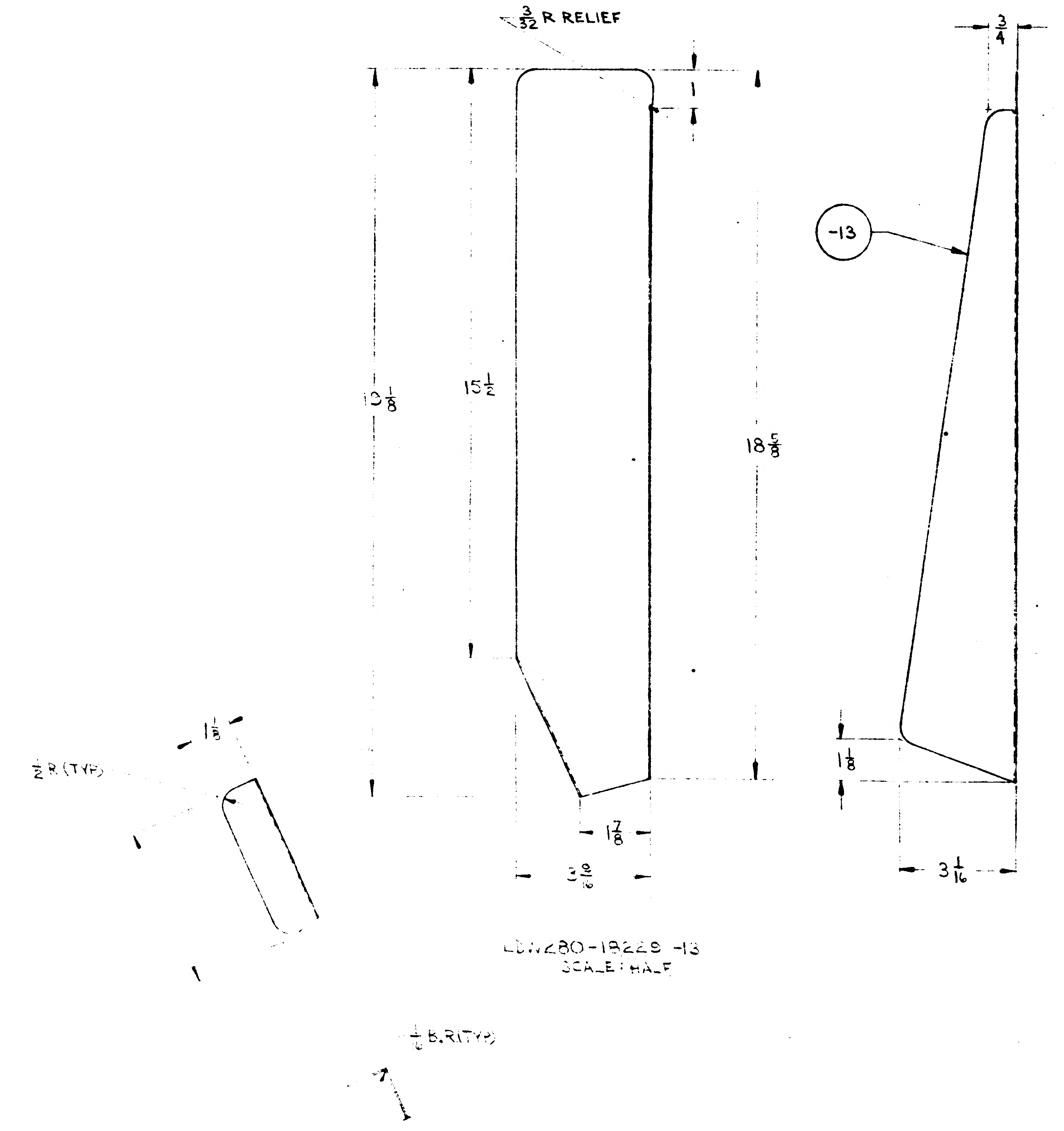
01 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	E	26512	LDW280-18229	A
	SCALE 1/2		SHEET 3.00	

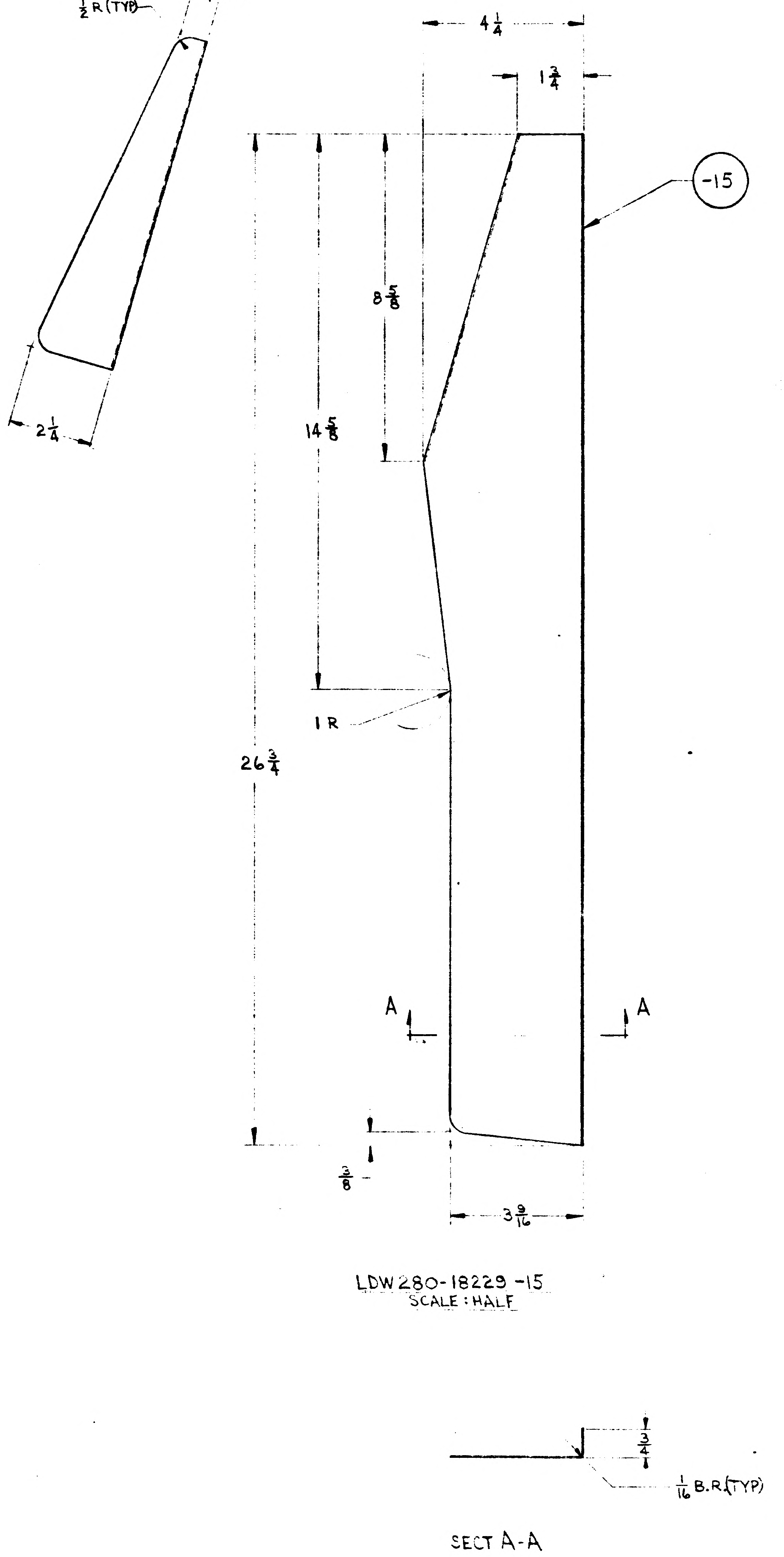
LDW280-18229A

LDW280-18229A



$\frac{3}{32}$ R RELIEF
1
$10\frac{1}{8}$
$15\frac{1}{2}$
$18\frac{5}{8}$
$\frac{3}{4}$
-13
$1\frac{1}{8}$
$1\frac{7}{8}$
$3\frac{9}{16}$
$3\frac{1}{16}$
$\frac{1}{2}$ R (TYP)
$1\frac{1}{8}$
$\frac{1}{16}$ B.R (TYP)

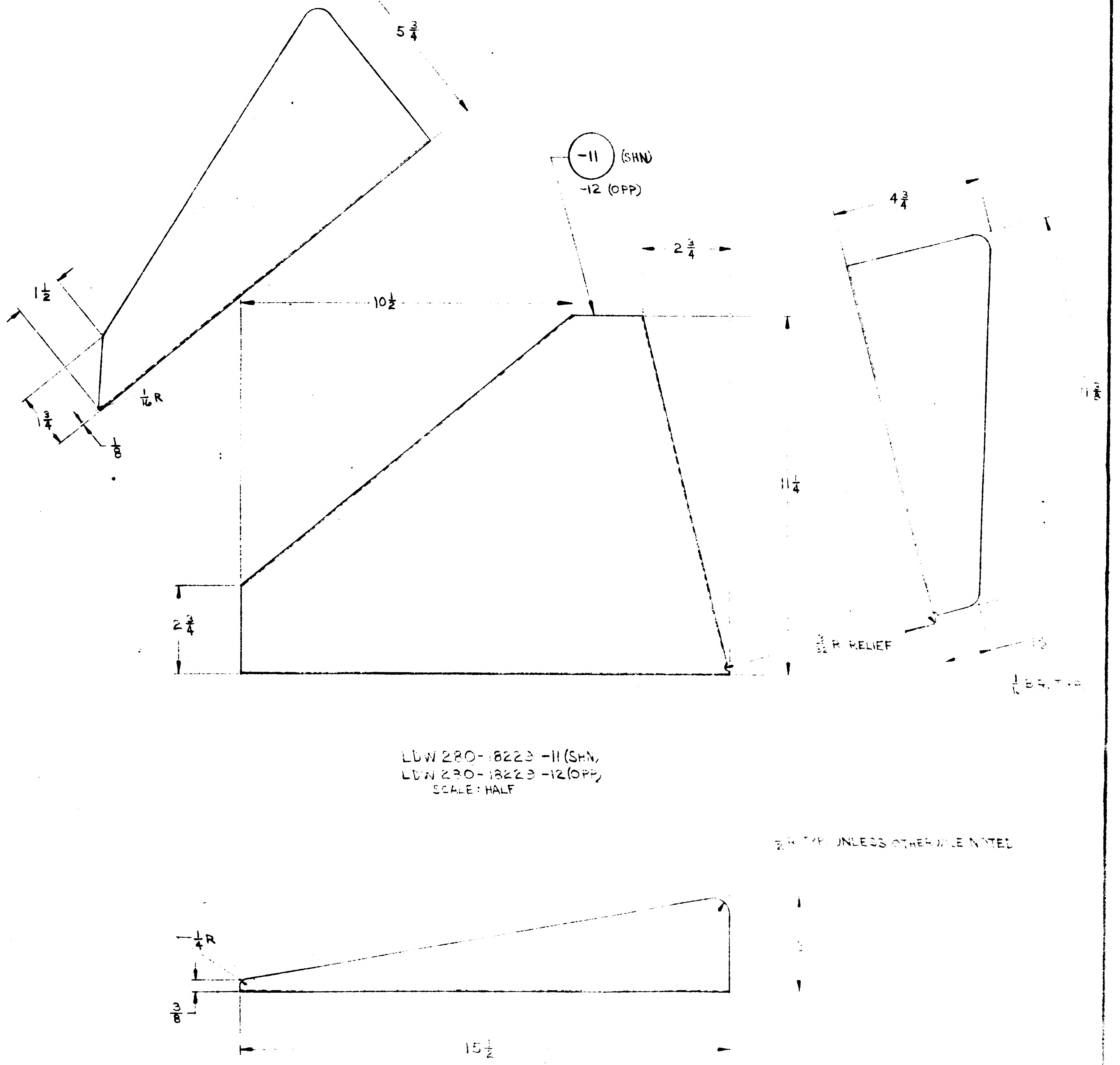
LDW280-18229-13
SCALE: HALF



$\frac{1}{2}$ R (TYP)
$\frac{3}{4}$
$2\frac{1}{4}$
$4\frac{1}{4}$
$1\frac{3}{4}$
-15
$8\frac{5}{8}$
$14\frac{5}{8}$
1 R
$26\frac{3}{4}$
A
A
$\frac{3}{8}$
$3\frac{9}{16}$
$\frac{3}{4}$
$\frac{1}{16}$ B.R (TYP)

LDW280-18229-15
SCALE: HALF

SECT A-A

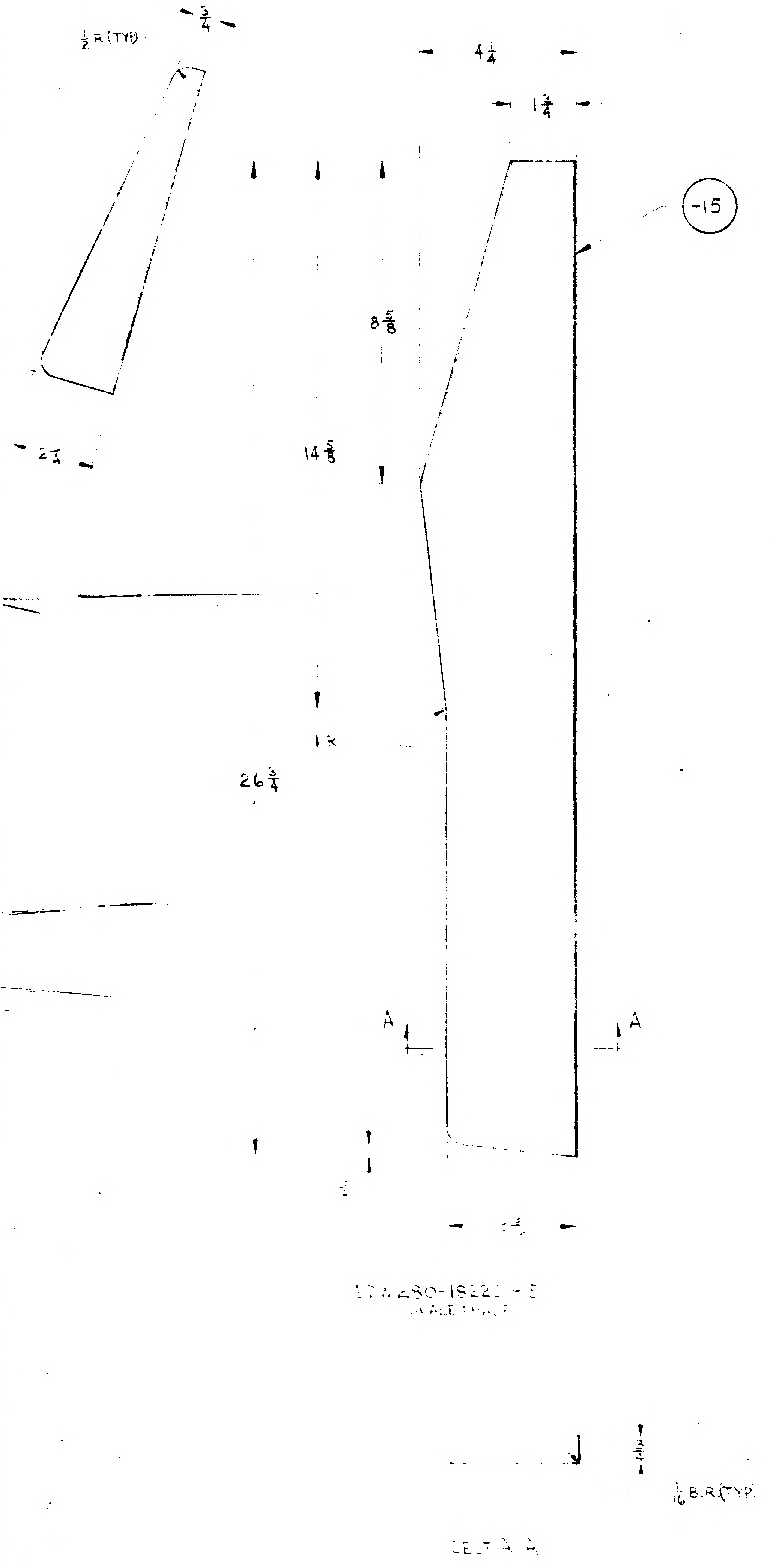


$5\frac{3}{4}$
$1\frac{1}{2}$
$\frac{1}{16}$ R
$1\frac{3}{4}$
$\frac{1}{8}$
-11 (SHN)
-12 (OPP)
$10\frac{1}{2}$
$2\frac{3}{4}$
$4\frac{3}{4}$
$11\frac{1}{4}$
$2\frac{3}{4}$
$\frac{3}{32}$ R RELIEF
$\frac{1}{16}$ B.R. TYP
$\frac{1}{4}$ R
$\frac{3}{8}$
$15\frac{1}{2}$

LDW 280-18223 -11 (SHN)
LDW 280-18223 -12 (OPP)
SCALE: HALF

$\frac{1}{2}$ R TYP UNLESS OTHERWISE NOTED

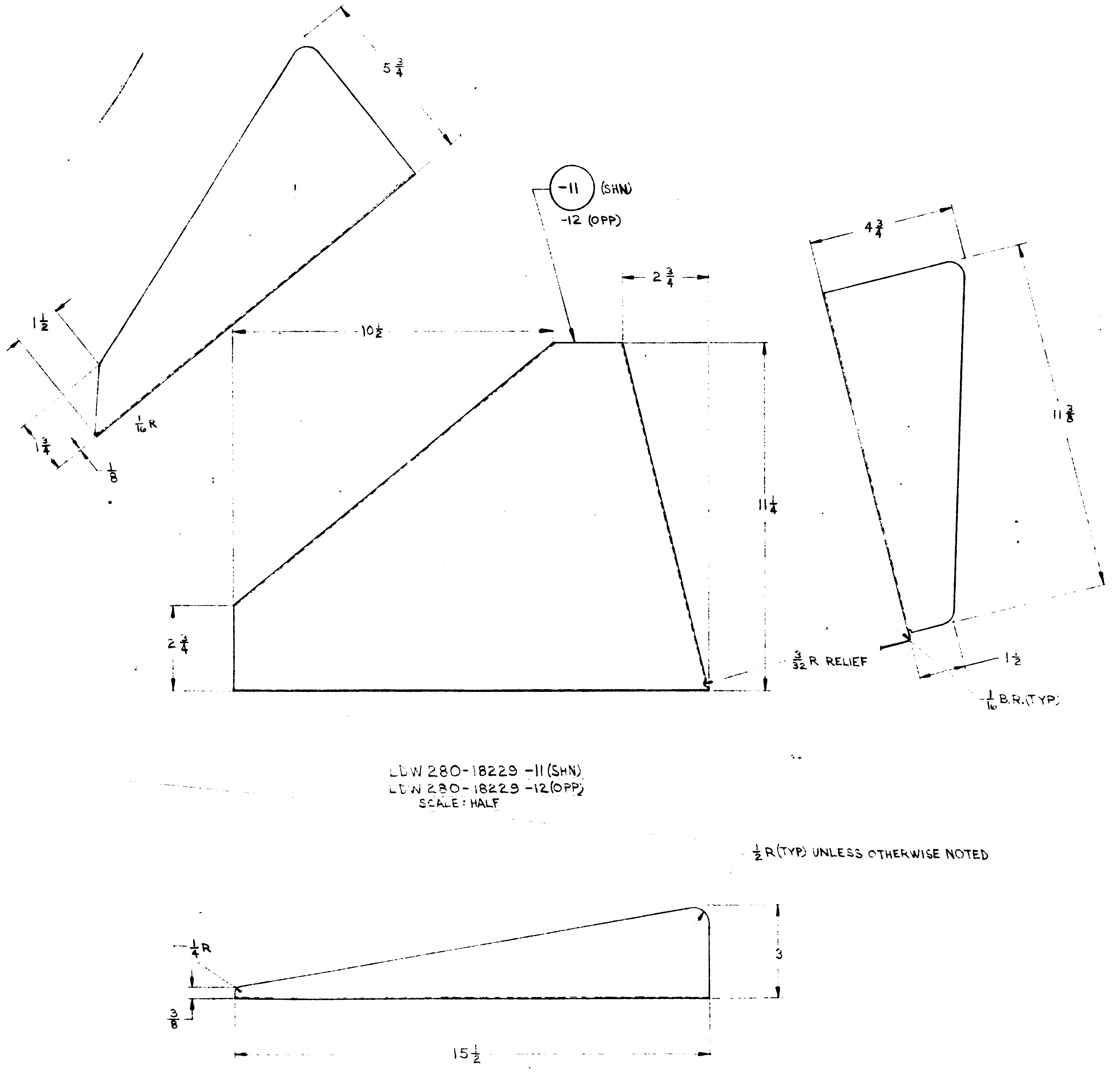
01/02 NAS 9-1100



$\frac{1}{2}$ R (TYP)
$\frac{3}{4}$
$2\frac{1}{4}$
$4\frac{1}{4}$
$1\frac{3}{4}$
-15
$8\frac{5}{8}$
$14\frac{5}{8}$
1 R
$26\frac{3}{4}$
A
A
$\frac{3}{4}$
$\frac{1}{16}$ B.R. (TYP)

LDW 280-18229-15
SCALE: HALF

SECT A-A



$5\frac{3}{4}$
$1\frac{1}{2}$
$1\frac{3}{4}$
$\frac{1}{8}$
$\frac{1}{16}$ R
-11 (SHN)
-12 (OPP)
$10\frac{1}{2}$
$2\frac{3}{4}$
$11\frac{1}{4}$
$2\frac{3}{4}$
$\frac{3}{32}$ R RELIEF
$4\frac{3}{4}$
$11\frac{3}{8}$
$1\frac{1}{2}$
$\frac{1}{16}$ B.R. (TYP)
$\frac{1}{4}$ R
3
$\frac{3}{8}$
$15\frac{1}{2}$

LDW 280-18229 -11 (SHN)
LDW 280-18229 -12 (OPP)
SCALE: HALF

$\frac{1}{2}$ R (TYP) UNLESS OTHERWISE NOTED

C.L.	PART NO.	I&T	DESCRIPTION	MATERIAL	PROCESS SYM	FINISH
C	LDW 280-18229-11	E	FOIL	MAKE FROM .0005 THICK, BRIGHT ROLLED NICKEL FOIL COMMERCIALLY PURE (INCO 200 OR EQIV) (SEE NOTES #1 & #3)	NONE	NONE
C	LDW 280-18229-12	E	FOIL		NONE	NONE
C	LDW 280-18229-13	E	FOIL		NONE	NONE
C	LDW 280-18229-15	E	FOIL		NONE	NONE

LM	LDW 280-28644	LM-1(31) -LM-15(45)	2 EA
MODEL	NEXT ASSY	MODULE	REQD/MOD
PART NO LDW 280-18229-11, -12			

LM	LDW 280-28642	LM-1(31)-LM-15(45)	2
MODEL	NEXT ASSY	MODULE	REQD/MOD
PART NO LDW 280-18229-13			

LM	LDW 280-28646	LM-1(31) -LM-15(45)	2
MODEL	NEXT ASSY	MODULE	REQD/MOD
PART NO LDW 280-18229-15			

NOTE:
1. FABRICATE NICKEL FOIL IN ACCORDANCE WITH LPC 280-19
2. NO TOOLING HOLES PERMITTED IN PARTS
3. NICKEL FOIL SHALL BE RANDOM WRINKLED BEFORE N/A

C.L. = CLEANLINESS LEVEL PER LSP 14-0011

CONTRACT NO NAS-9-1100 LINE ITEM I
DOCUMENTATION TYPE II PRIM NO 207

* DRAWING NOT MADE

DETAIL SPEC REQD		CLASS II ENGRG CHG	✓	CLASS I ENGRG CHG	CONTROL INFO NO LDW 280 A

REASON FOR EO: PLUME IMPINGEMENT PROTECTION REQD FOR INTERSTAGE FITTINGS (LCR-620)

DESCRIPTION OF EO: EO. A1 INITIAL DRAWING RELEASE; PARTS MADE PER EO

GRUMMAN EO RELEASE

MODEL	PROCURING ACT. NO.	GAEC UNIT NO	SUB CONTR UNIT NO
LM		LM-1(31) THRU	
		LM-15(45)	

DRAWING REVISION REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	BY / DATE	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	GOV'T
NOT REQD		NOT REQD		12/16/66 VDI							

PRIORITY	DRAWING TITLE	ENGINEERING ORDER DRAWING NO	EO NO
C	DESCENT STAGE - INTERSTAGE - PROTECTION	LDW 280-18229	A1

V.A. CHRISTINA
ISSUED BY J. STRAKOSCH SECTION VDI X1153 GROUP NO 335 PL 35
CODE IDENT NO 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE L. I. N. Y.
ENG 32.3 REV 3-66

THIS IS AN ORIGINAL DWG

02/02 NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 EO NO. 801
CONTROL INFO NO. LDW280A9696

FOR THE NOTED DWGS, REVISE EFFECTIVITY AS SHOWN BELOW:

DWG No.	DASH No. ▲	DWG TITLE	EFF (NOW) ■	EFF (WAS) ●	CHANGE No.
LDW280P18227	-11	SKIN D/S-INTERSTAGE-PROTECTION	LM-1(31) & LM-2(32)	LM-1(31) THRU LM-15(45)	
↕	-12	↕	↕	↕	B1 ✓
↕	-13	↕	↕	↕	
LDW280P18227	-15	SKIN D/S-INTERSTAGE-PROTECTION	↕	↕	
LDW280-18228	-11	SHIELD D/S-INTERSTAGE-PROTECTION	↕	↕	
↕	-12	↕	↕	↕	B1 ✓
↕	-13	↕	↕	↕	
LDW280-18228	-15	SHIELD D/S-INTERSTAGE-PROTECTION	↕	↕	
LDW280-18229	-11	FOIL D/S-INTERSTAGE-PROTECTION	↕	↕	
↕	-12	↕	↕	↕	B1 ✓
↕	-13	↕	↕	↕	
LDW280-18229	-15	FOIL D/S-INTERSTAGE-PROTECTION	LM-1(31) & LM-2(32)	LM-1(31) THRU LM-15(45)	

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1244

REASON FOR EO: TO PROVIDE FOR FITH SHIELD (PARTS NOT REQ'D ON LM-3 & UP)

DESCRIPTION OF EO: RESTRICTED DASH No. (▲) TO (■) WAS (●).

GAEC EO RELEASE: C JK 11/18/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33) THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	11/9/67			11-9-67	11/10/67		11/9/69	11-17-67
D	V.D.I.		RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: AS NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 801

CDR 11/17/67
ISSUED BY DON THOMAS / P. THORJUSEN SECTION V.E.L. X1153 GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18230

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23579	LM-3(33)	1EA
PART NO. LDW280-18230 -11,-13, -15 & -17		GAEC SCH NO. 51-2	

CCA # 359 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REF INFO

PRIM NO. 207 VE(001) MP-14 1-13-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY J. GRIECO 12-20-66
LAYOUT BY HANSMANN GDH
CHECKED BY EG 12-20-66
GR LEADER 1/11/67
VEH DES INT J. Pusateri 1/12/67
STRUCTURES N.M. W/H 1/12/67
STRUCTURES RPJ 1/12/67
WEIGHTS
RELIABILITY
PROJ ENGR 1/11/67
REL GROUP Botti 1-12-67

② GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE SCIENTIFIC EQUIP
L.H. END CLOSURE

SIZE B
CODE IDENT NO. 26512
LDW280-18230
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 1-15-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18230 -17	E		DOUBLER	AL ALLOY SH	QQ-A-250/5	ALCLAD 2024-T3	.010 x 7 x 7	NONE	88	
	-15					QQ-A-250/5	ALCLAD 2024-T3	.010 x 7 x 7			
	-13					QQ-A-250/12	7075-T6	.032 x 10 x 14			
	LDW280-18230-11	E		DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.032 x 8 x 15	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18230

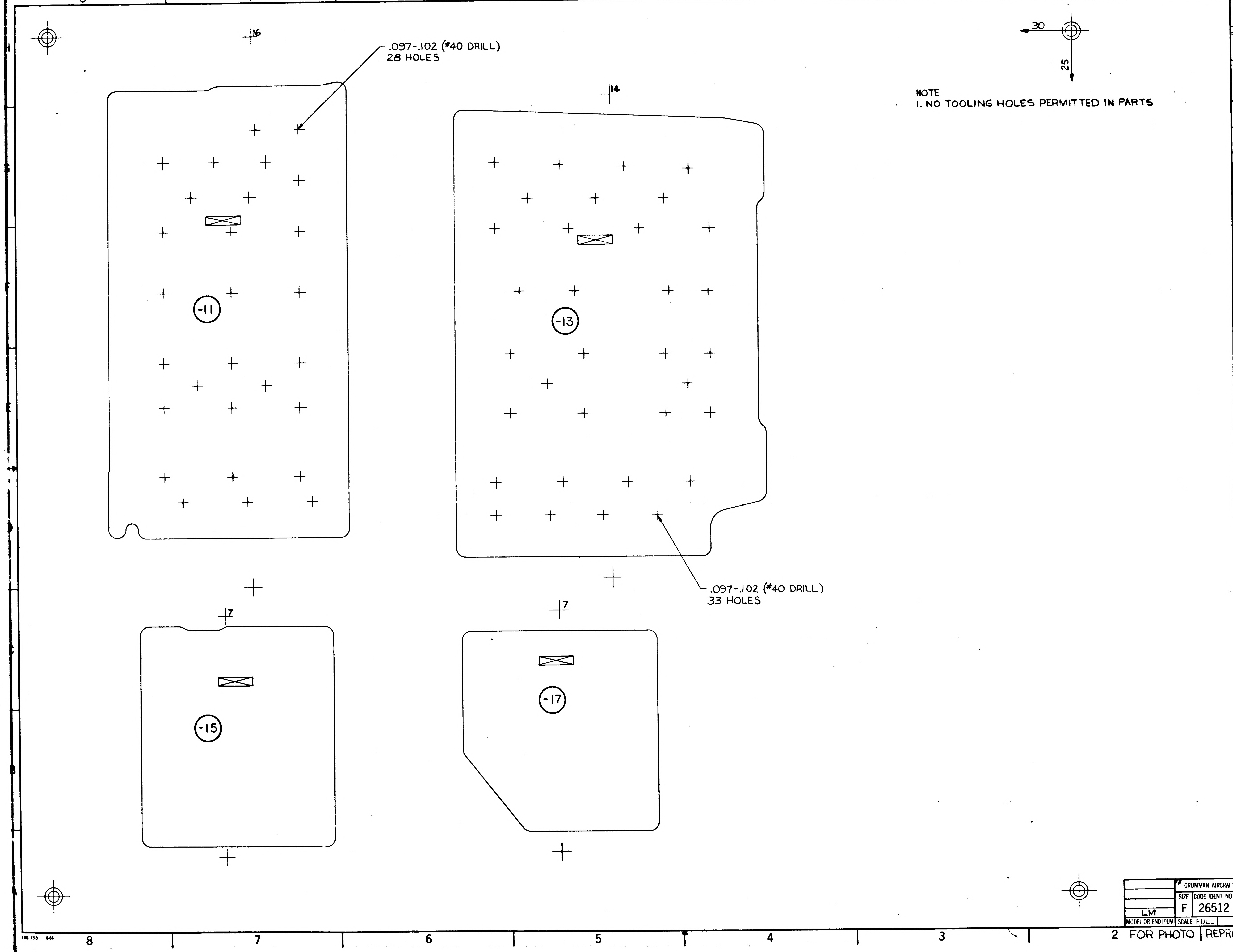
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100



NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18230

LDW280-18230

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	F	26512	LDW280-18230
	SCALE FULL		SHEET 3.00

2 FOR PHOTO | REPRODUCTION 1

K2

ENG 73-5 6-64

NAS 9-1100

LDW280-18231

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23579	LM-3(33)	2
PART NO. LDW280-18231-19		GAEC SCH NO. 51-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23579	LM-3(33)	1EA
PART NO. LDW280-18231-11,-12,-13,-14,-15,-16 & -17		GAEC SCH NO. 51-2	

CCA # 359 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO.	LE (001)		
207	MP-14	1-13-7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CCA - 359

CONTRACT NO. NAS 9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY	E. SICK 12/22/66	RELIABILITY	–
LAYOUT BY	G. HANSMANN		
CHECKED BY	C. GLASER 12-27-66		
GR LEADER	1/11/67		
VEHDESINT	1/12/67		
STRUCTURE	NM Wild 1/12/67	PROJ ENGR	TJ Kelly 1/12/67
STRUCTURE	1/12/67	REL GROUP	Botti 1-12-67
WEIGHTS	–		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - S. EQ - LH END CLOSURE
R.T.G. SHIELD SPT

SIZE B

CODE IDENT NO. 26512

LDW280-18231

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 1-15-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18231-19	E		STRAP	AL ALLOY SH	QQ-A-250/12	7075-T6	.040 × 2 ×18	NONE	88	
	LDW280-18231-17	E		ZEE	AL ALLOY SH	QQ-A-250/12	7075	.036 x 3 x 7	T6	88	
	-16							.036 × 4 x 8			
	-15							.036 × 4 x 8			
	-14							.040 x 3 x 19			
	-13			ZEE				.040 x 3 x 19			
	-12			CHANNEL				.036 × 4 x 10			
	LDW280-18231-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.036 × 4 x 10	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18231

SCALE NONE

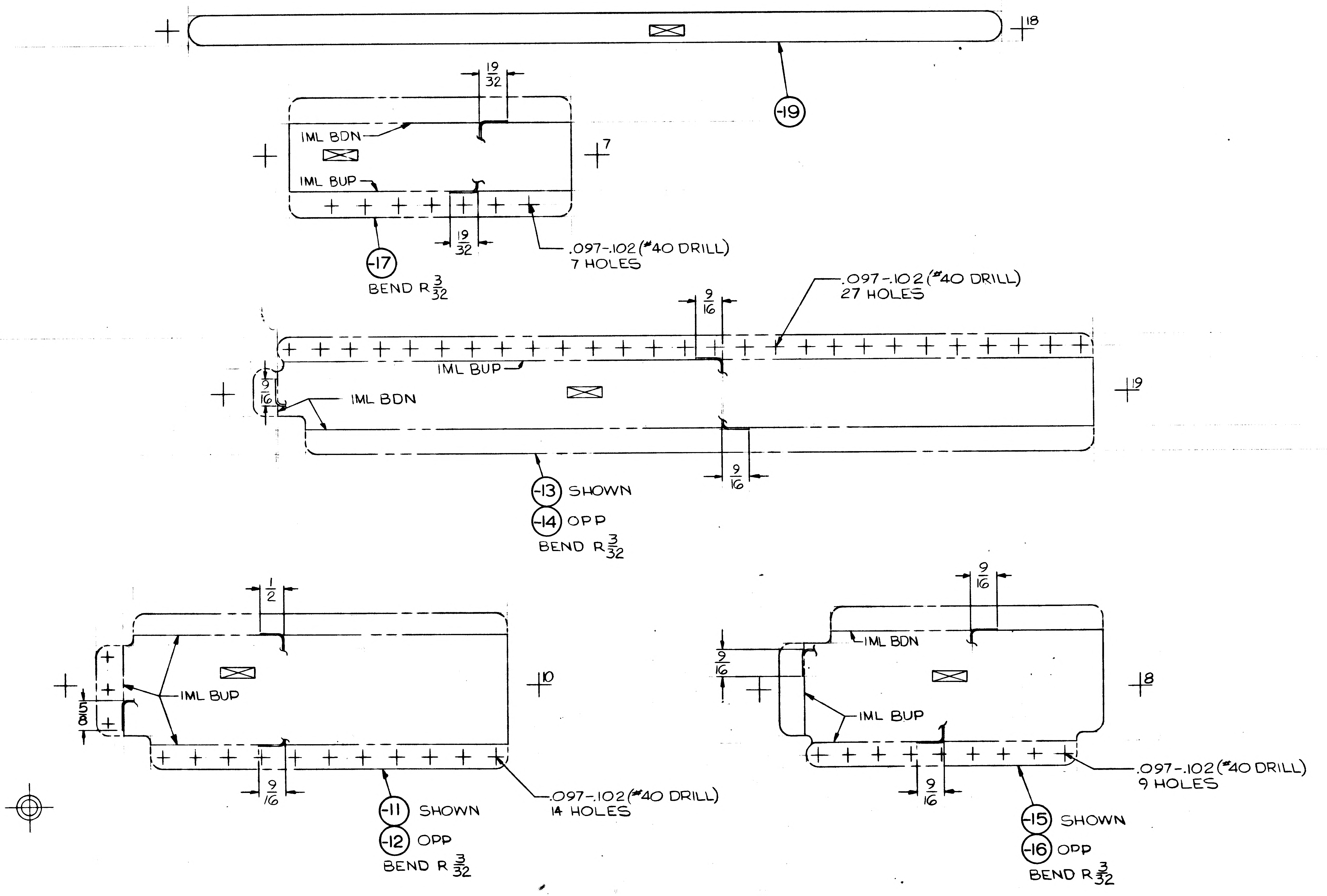
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ALL ABBREVIATIONS ARE PER MIL-STD-12
EXCEPT AS FOLLOWS:
S. EQ = SCIENTIFIC EQUIPMENT
R.T.G. = RADIO ISOTOPE THERMAL GENERATOR.


18
-19
19/32
IML BDN
IML BUP
7
19/32
-17
BEND R 3/32
.097-.102 (#40 DRILL)
7 HOLES
.097-.102 (#40 DRILL)
27 HOLES
9/16
IML BUP
IML BDN
9/16
19
9/16
-13 SHOWN
-14 OPP
BEND R 3/32
1/2
IML BUP
5/8
10
9/16
-11 SHOWN
-12 OPP
BEND R 3/32
.097-.102 (#40 DRILL)
14 HOLES
9/16
IML BDN
9/16
18
IML BUP
9/16
.097-.102 (#40 DRILL)
9 HOLES
-15 SHOWN
-16 OPP
BEND R 3/32

30
20

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18231

LDW280-18231

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	F	26512	LDW280-18231
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

ENG 73-5 6-64

NAS 9-1100

LDW280-18232

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23579	LM-3(33)	1 EA
PART NO LDW280-18232-11,-13,-15,-17&-19		GAEC SCH NO. 51-2	

CCA# 359 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00				
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. UE(001) 207 MP-14 1/13/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CCA-359

CONTRACT NO. NAS 9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY A. SCHMADTKE 12/22/66

LAYOUT BY G HANSMANN G.W.H.

CHECKED BY R. SMITH 12-27-66

GR LEADER 1/11/67

VEH DES INT J. Pacateri 1/12/67

STRUCTURES N.M. W/U 1/12/67

STRUCTURES FEB 1/12

WEIGHTS —

RELIABILITY —

PROJ ENGR TJ 1/12/67

REL GROUP 1/12/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE-SEQ-LH END CLOSURE-
RTG SHIELD - WEB SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18232

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 1-15-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18232-19	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.036 X 4 X 5	T6	88	
	-17	↕		CHANNEL	↕	↕	↕	.036 X 4 X12	↕	↕	
	-15	↕		ZEE	↕	↕	↕	.036 X 4 X15	↕	↕	
	-13	↕		ZEE	↕	↕	↕	.036 X 4 X16	↕	↕	
	LDW280-18232 -11	E		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.036 X 4 X 15	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18232

SCALE NONE

SHEET 2.00

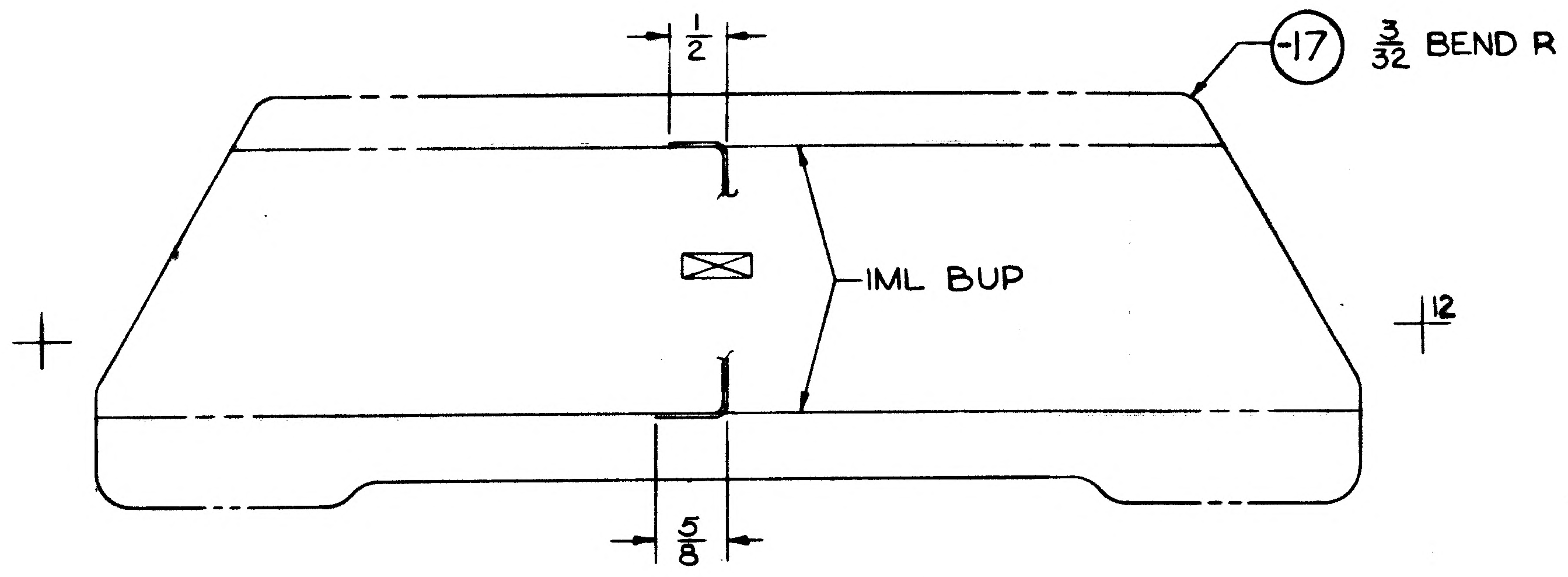
ENG 77.2 5-64

01

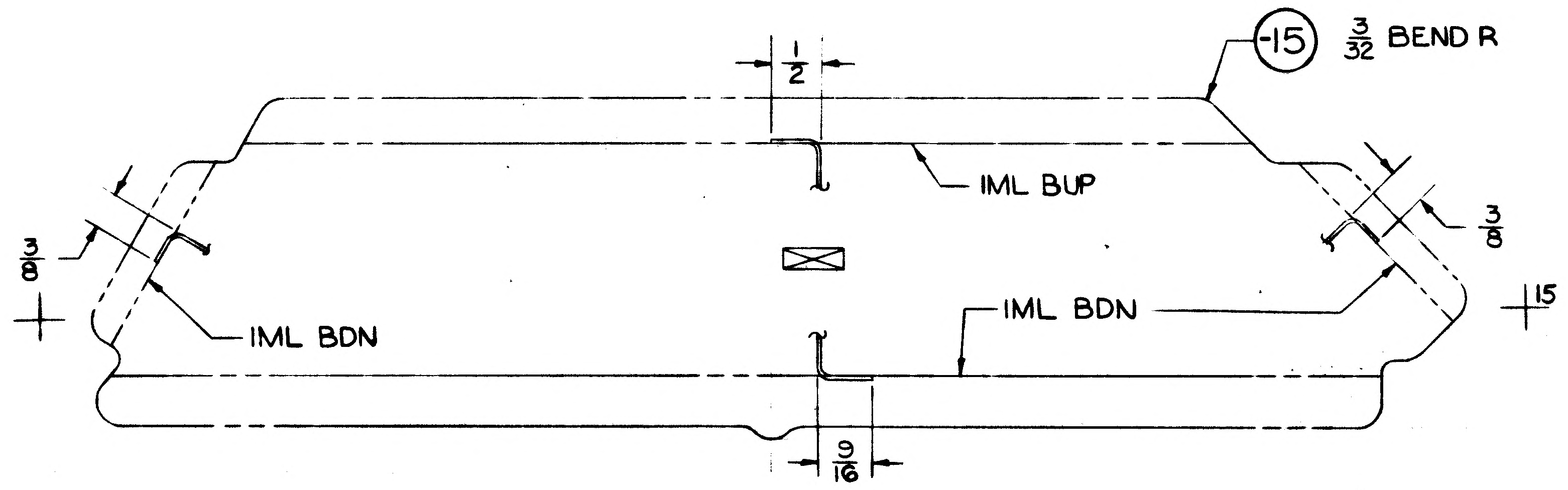
NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ALL ABBREVIATIONS ARE PER MIL-STD 12 EXCEPT AS FOLLOWS:

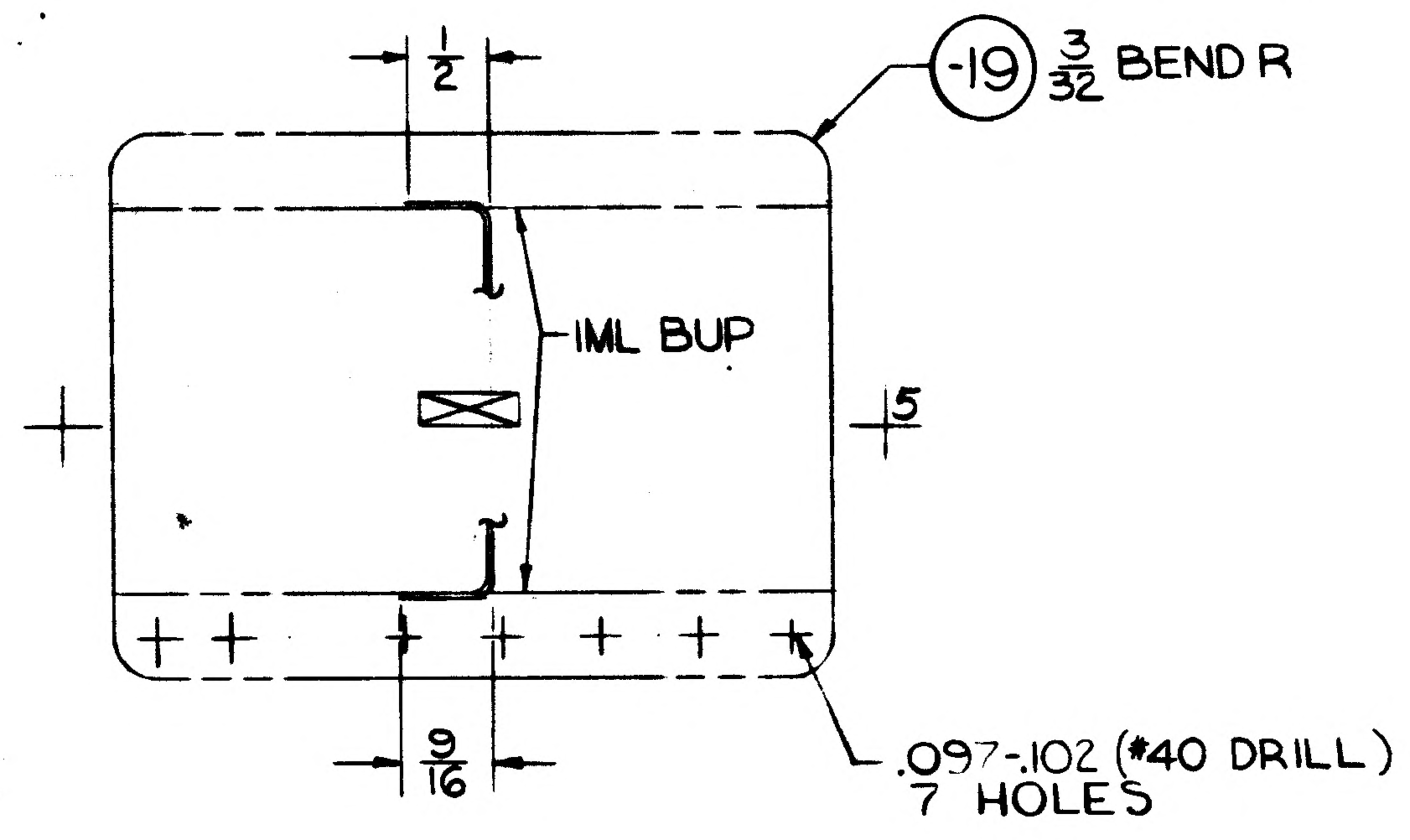
SEQ = SCIENTIFIC EQUIPMENT
RTG = RADIO ISOTOPE THERMAL GENERATOR



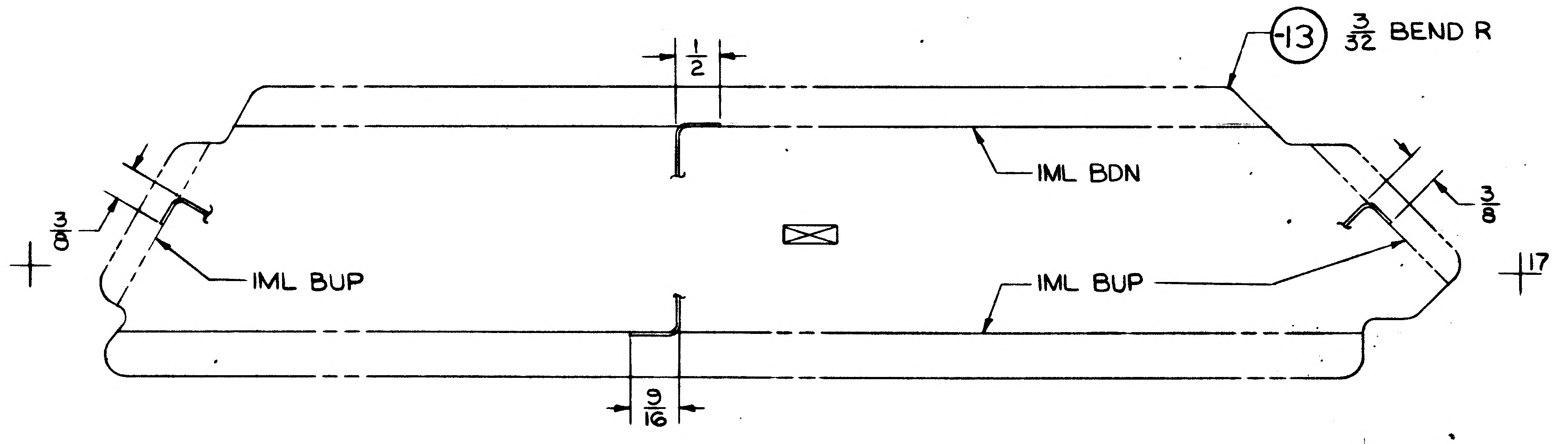
-17
$\frac{3}{32}$ BEND R
$\frac{1}{2}$
IML BUP
12
$\frac{5}{8}$



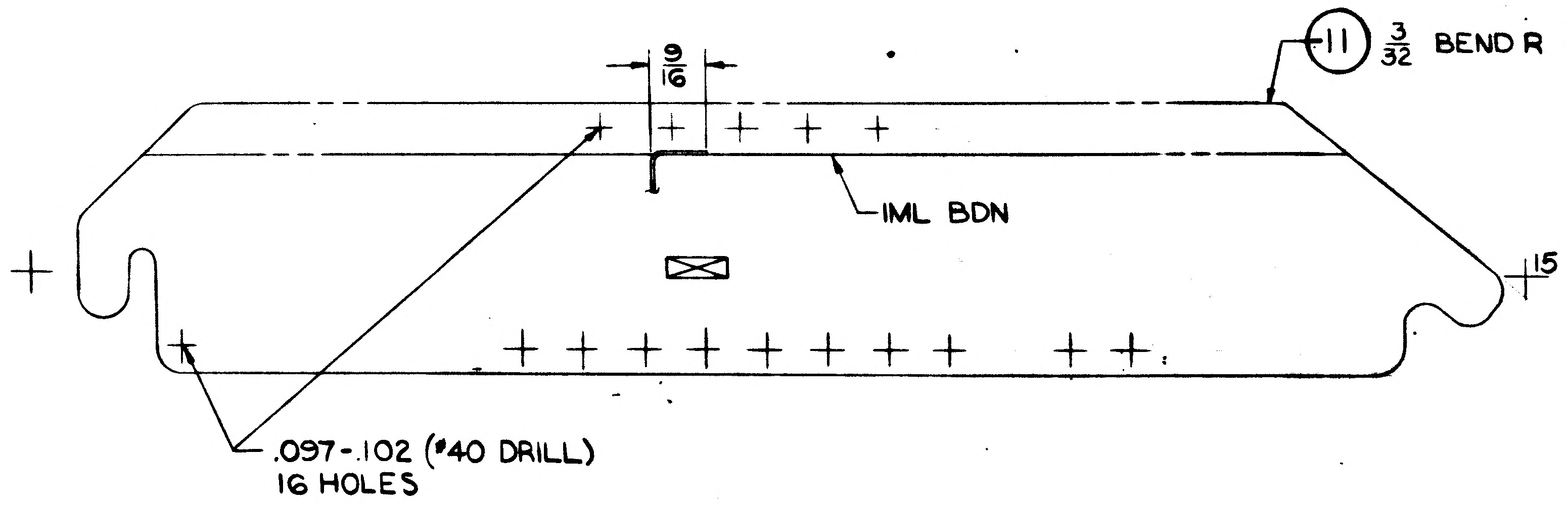
-15
$\frac{3}{32}$ BEND R
$\frac{1}{2}$
IML BUP
$\frac{3}{8}$
IML BDN
IML BDN
$\frac{3}{8}$
15
$\frac{9}{16}$



-19
$\frac{3}{32}$ BEND R
$\frac{1}{2}$
IML BUP
5
$\frac{9}{16}$
.097-.102 (#40 DRILL)
7 HOLES



-13
$\frac{3}{32}$ BEND R
$\frac{1}{2}$
IML BDN
$\frac{3}{8}$
IML BUP
IML BUP
$\frac{3}{8}$
17
$\frac{9}{16}$



-11
$\frac{3}{32}$ BEND R
$\frac{9}{16}$
IML BDN
15
.097-.102 (#40 DRILL)
16 HOLES

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	E	26512	LDW280-18232
SCALE FULL		SHEET 3.00	

LDW280-18232

FOR PHOTO REPRODUCTION

LDW280-18233

				LM	LDW280-23579	LM-3(33)	2	LM	LDW280-23579	LM-3(33)	1 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.		PART NO. LDW280-18233-17		GAEC SCH NO. 51-2		PART NO. LDW280-18233-11,-12,-13,-14 & -15		GAEC SCH NO. 51-2	

CCA #359 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REF INFO		
		PRIM NO.	CE(001)	
LAST DASH NO. USED	-17	207	MP-14	1-13-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE
CCA #359

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	E.SICK 12/27/66	RELIABILITY	
LAYOUT BY	G.HANSMANN		
CHECKED BY	RR 1-3-67		
GR LEADER	1/11/67		
VEH DES INT	G. Pusateri 1/12/67		
STRUCTURE	N.M. W/M 1/12/67	PROJ ENGR	TJKelly 1/12/67
STRUCTURE	EB 1/12/67	REL GROUP	Botte 1-12-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE-S EQ-LH END CLOSURE
RTG SHIELD SUPT.

SIZE B
CODE IDENT NO. 26512
LDW280-18233
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 1-15-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18233-17	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.036 x 2 x 3	T6	88	
	-15	↕		WEB	↕	↕	7075-T6	.032 x 6 x 13	NONE	↕	
	-14	↕		CLIP	↕	↕	7075	.036 x 2 x 4	T6	↕	
	-13	↕		↕	↕	↕	↕	.036 x 2 x 4	↕	↕	
	-12	↕		↕	↕	↕	↕	.036 x 2 x 4	↕	↕	
	LDW280-18233-11	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.036 x 2 x 4	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18233

SCALE NONE

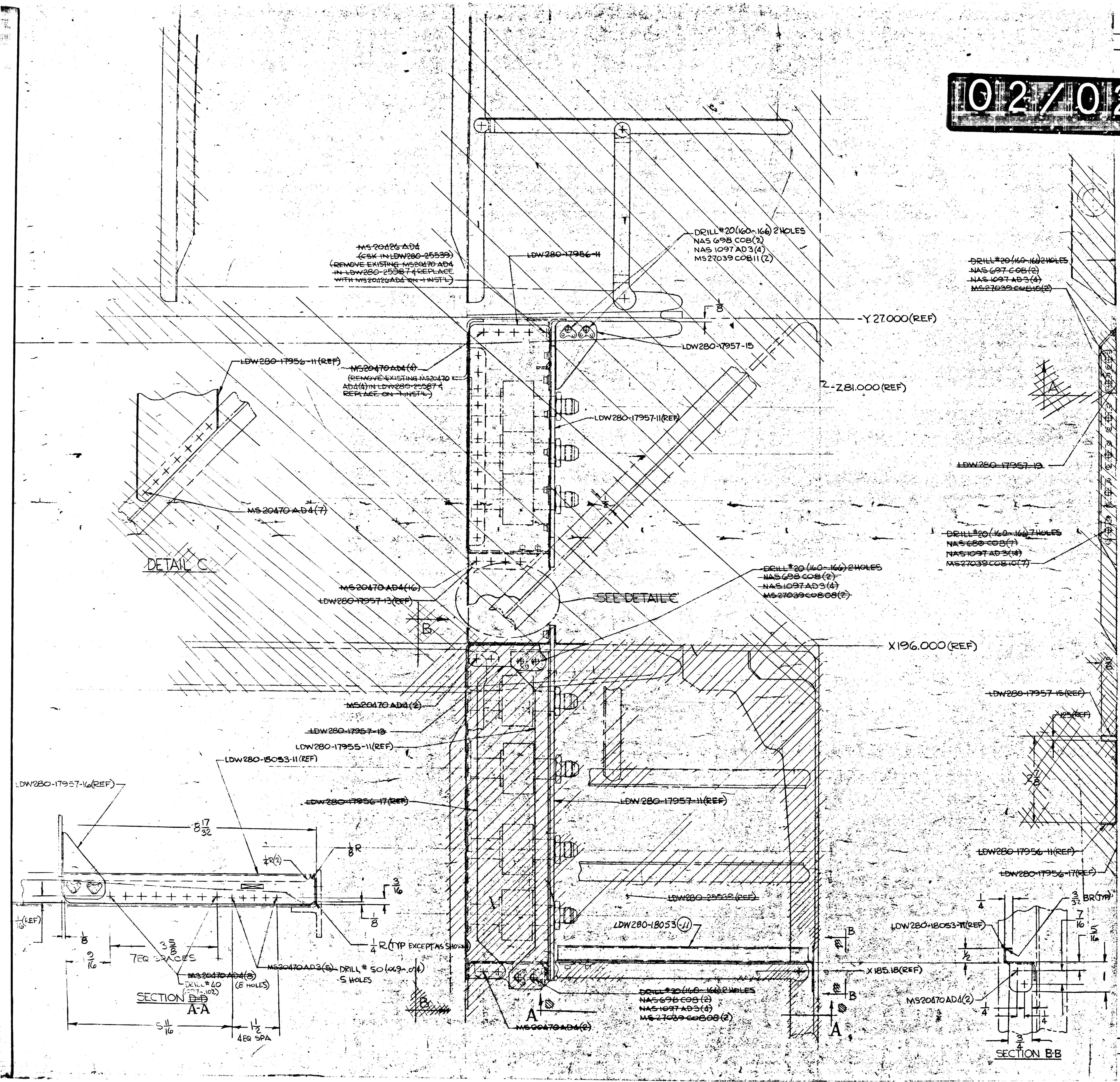
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

102/02 NAS 9-1100



DRILL #20 (160-166) 2 HOLES
NAS 698 C08 (2)
NAS 1097 AD3 (4)
MS27039 C0811 (2)
~~MS20426 AD4~~
~~(CSK IN LDW280-25539)~~
~~(REMOVE EXISTING MS20470 AD4 IN LDW280-25587 & REPLACE WITH MS20426AD4 ON 1 INST'L)~~
LDW280-17956-11
Y 27.000 (REF)
LDW280-17957-15
Z 81.000 (REF)
LDW280-17956-11 (REF)
~~MS20470 AD4 (4)~~
~~(REMOVE EXISTING MS20470 AD4(4) IN LDW280-25587 & REPLACE ON 1 INST'L)~~
LDW280-17957-11 (REF)
MS20470 AD4 (7)
DETAIL C
~~MS20470 AD4 (16)~~
~~LDW280-17957-13 (REF)~~
SEE DETAIL C
~~DRILL #20 (160-166) 2 HOLES~~
~~NAS 698 C08 (2)~~
~~NAS 1097 AD3 (4)~~
~~MS27039 C0808 (2)~~
B
X 196.000 (REF)
~~MS20470 AD4 (2)~~
~~LDW280-17957-13~~
LDW280-17955-11 (REF)
LDW280-18053-11 (REF)
LDW280-17957-16 (REF)
~~LDW280-17956-17 (REF)~~
LDW280-17957-11 (REF)
~~LDW280-25532 (REF)~~
LDW280-18053-11
$8\frac{17}{32}$
$\frac{1}{8}$R (2)
$\frac{3}{8}$R
$\frac{3}{16}$
$\frac{1}{16}$ (REF)
$\frac{1}{8}$
$\frac{9}{16}$
$3\frac{5}{8}$
7 EQ SPACES
$\frac{1}{4}$R (TYP EXCEPT AS SHOWN)
MS20470 AD3 (5)
DRILL # 50 (.069-.074) 5 HOLES
~~MS20470 AD4 (8)~~
DRILL # 40 (.097-.102) (8 HOLES)
SECTION ~~D-D~~ A-A
$5\frac{11}{16}$
$1\frac{1}{2}$
4 EQ SPA
A
X 185.18 (REF)
~~DRILL #20 (160-166) 2 HOLES~~
~~NAS 698 C08 (2)~~
~~NAS 1097 AD3 (4)~~
~~MS27039 C0808 (2)~~
~~MS20470 AD4 (2)~~
B
A
~~DRILL #20 (160-166) 2 HOLES~~
~~NAS 697 C08 (2)~~
~~NAS 1097 AD3 (4)~~
~~MS27039 C0810 (2)~~
A
~~LDW280-17957-13~~
~~DRILL #20 (160-166) 7 HOLES~~
~~NAS 680 C08 (7)~~
~~NAS 1097 AD3 (14)~~
~~MS27039 C0810 (7)~~
~~LDW280-17957-15 (REF)~~
~~X 25 (REF)~~
$2\frac{7}{8}$
~~LDW280-17956-11 (REF)~~
~~LDW280-17956-17 (REF)~~
$\frac{3}{32}$ BR (TYP)
$\frac{1}{4}$
$\frac{7}{16}$
$\frac{5}{16}$
LDW280-18053-11 (REF)
$\frac{1}{2}$
MS20470 AD4 (2)
$\frac{1}{4}$
$\frac{1}{4}$
$\frac{3}{4}$
SECTION B-B

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

NOTES:

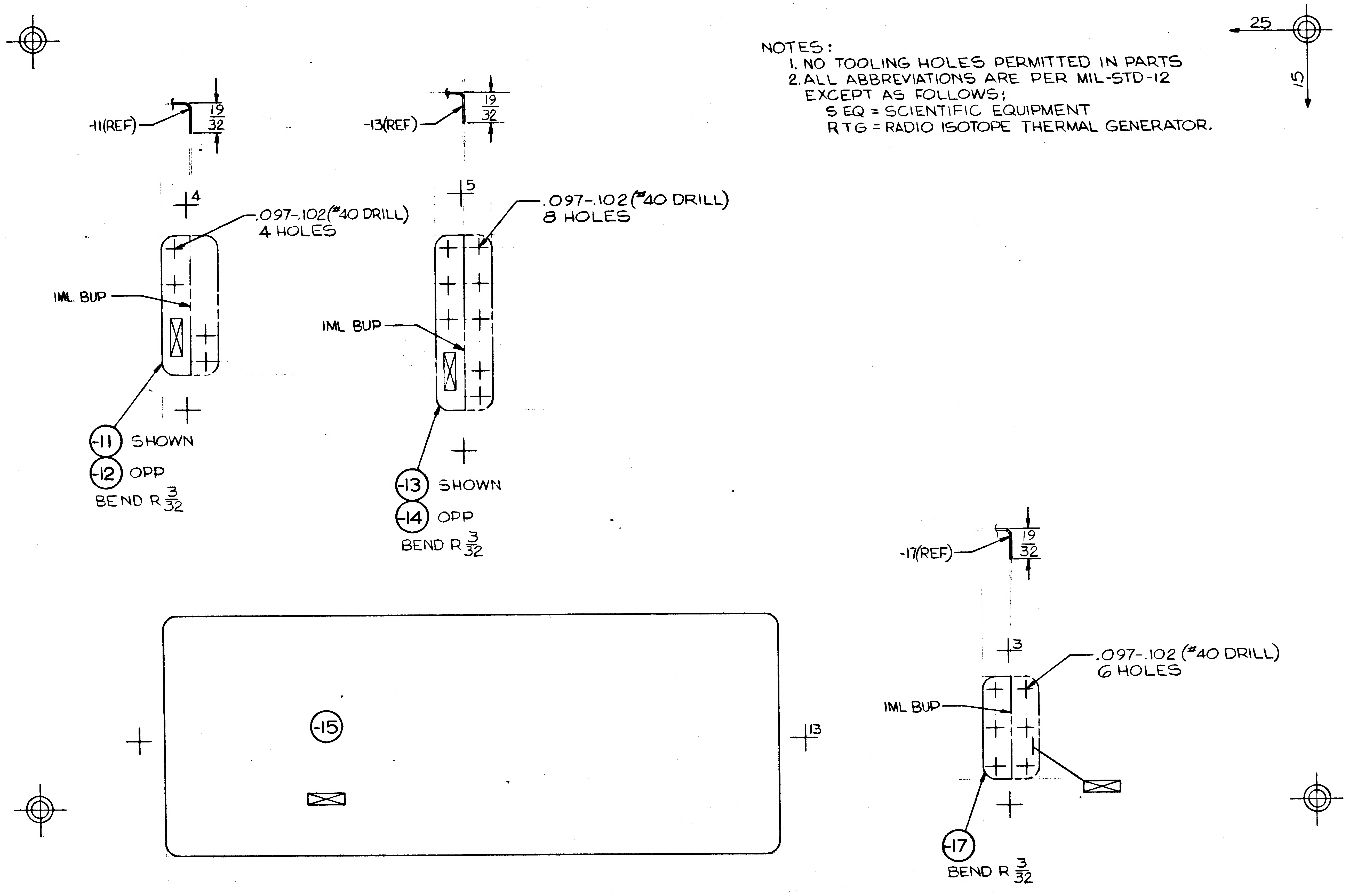
1. *ALL INFORMATION NOT REQ'D FOR DLW280-18053-11 IS REF. INFO. ONLY*

LAYOUT RELEASE – TO BE REDRAWN ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
LEM	SIZE J	CODE IDENT NO. 26512	DLW 280-18053
MODEL OR END ITEM	SCALE FULL		SHEET 2 of 0

THIS IS AN ORIGINAL DWG

ENG 73.7 8-64


-11(REF)
19/32
4
.097-.102(#40 DRILL)
4 HOLES
IML BUP
-11 SHOWN
-12 OPP
BEND R 3/32
-13(REF)
19/32
5
.097-.102(#40 DRILL)
8 HOLES
IML BUP
-13 SHOWN
-14 OPP
BEND R 3/32
25
15
-15
13
-17(REF)
19/32
3
.097-.102(#40 DRILL)
6 HOLES
IML BUP
-17
BEND R 3/32

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. ALL ABBREVIATIONS ARE PER MIL-STD-12 EXCEPT AS FOLLOWS;
   S EQ = SCIENTIFIC EQUIPMENT
   RTG = RADIO ISOTOPE THERMAL GENERATOR.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

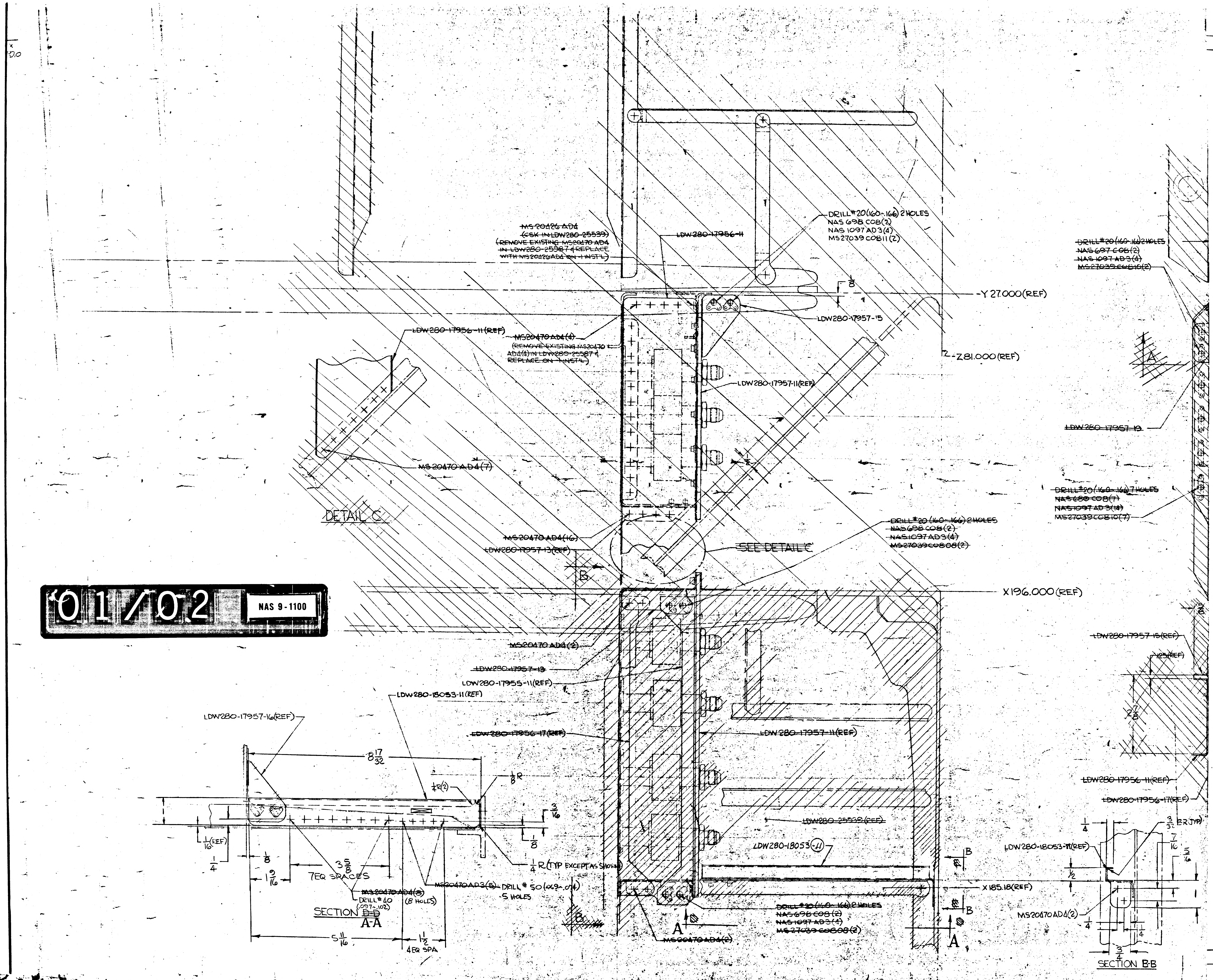
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18233
MODEL OR END ITEM	SCALE FULL		SHEET 3

FOR PHOTO REPRODUCTION

K2

NAS 9-1100

01/02 NAS 9-1100



~~MS20426 AD4~~
~~(CSK IN LDW280-25539)~~
~~(REMOVE EXISTING MS20470 AD4 IN LDW280-25587 & REPLACE WITH MS20426AD4 ON -1 INST'L)~~
~~LDW280-17956-11~~
DRILL #20(.160-.166) 2 HOLES
NAS 698 C08(2)
NAS 1097 AD3(4)
MS27039 C0811(2)
1/8
-Y 27.000(REF)
LDW280-17957-15
Z81.000(REF)
~~LDW280-17956-11(REF)~~
~~MS20470 AD4(4)~~
~~(REMOVE EXISTING MS20470 AD4(4) IN LDW280-25587 & REPLACE ON -1 INST'L)~~
LDW280-17957-11(REF)
~~MS20470 AD4(7)~~
1/2
DETAIL C
~~DRILL #20(.160-.166) 2 HOLES~~
~~NAS698 C08(2)~~
~~NAS1097 AD3(4)~~
~~MS27039 C0808(2)~~
~~MS20470 AD4(16)~~
~~LDW280-17957-13(REF)~~
~~SEE DETAIL C~~
B
X196.000(REF)
~~DRILL #20(.160-.166) 2 HOLES~~
~~NAS697 C08(2)~~
~~NAS 1097 AD3(4)~~
~~MS27039 C0810(2)~~
A
~~LDW280-17957-19~~
~~DRILL #20(.160-.166) 7 HOLES~~
~~NAS680 C08(7)~~
~~NAS1097 AD3(14)~~
MS27039 C0810(7)
~~MS20470 AD4(2)~~
~~LDW280-17957-13~~
LDW280-17955-11(REF)
LDW280-18053-11(REF)
LDW280-17957-16(REF)
~~LDW280-17956-17(REF)~~
LDW280-17957-11(REF)
8 17/32
1/4R(2)
1/8R
3/16
1/8
1/16(REF)
1/4
1/8
1 9/16
3 5/8
7EQ SPACES
~~MS20470AD4(8)~~
DRILL #40 (.097-.102) (8 HOLES)
~~MS20470AD3(5)~~ DRILL # 50 (.069-.074) 5 HOLES
1/4 R (TYP EXCEPT AS SHOWN)
SECTION ~~D-D~~ A-A
5 11/16
1 1/2
4EQ SPA
~~LDW280-25539(REF)~~
LDW280-18053-11
B
X185.18(REF)
~~DRILL #20(.160-.166) 2 HOLES~~
~~NAS698 C08(2)~~
~~NAS 1097 AD3(4)~~
~~MS27039 C0808(2)~~
A
~~MS20470 AD4(2)~~
A
~~LDW280-17957-15(REF)~~
.125(REF)
2 7/8
~~LDW280-17956-11(REF)~~
~~LDW280-17956-17(REF)~~
1/4
3/32 BR(TYP)
LDW280-18053-11(REF)
7/16
5/16
1/2
1
MS20470AD4(2)
1/4
1/4
3/4
SECTION B-B

NOTES:

1. ALL INFORMATION NOT REQ'D FOR

LAYOUT RELEASE - TO BE REDRAWN

	GRUMMAN
SIZE	CODE
J	26
MODEL OR END ITEM	SCALE

THIS IS AN OR

A

ENG 32.1 REV 3-65

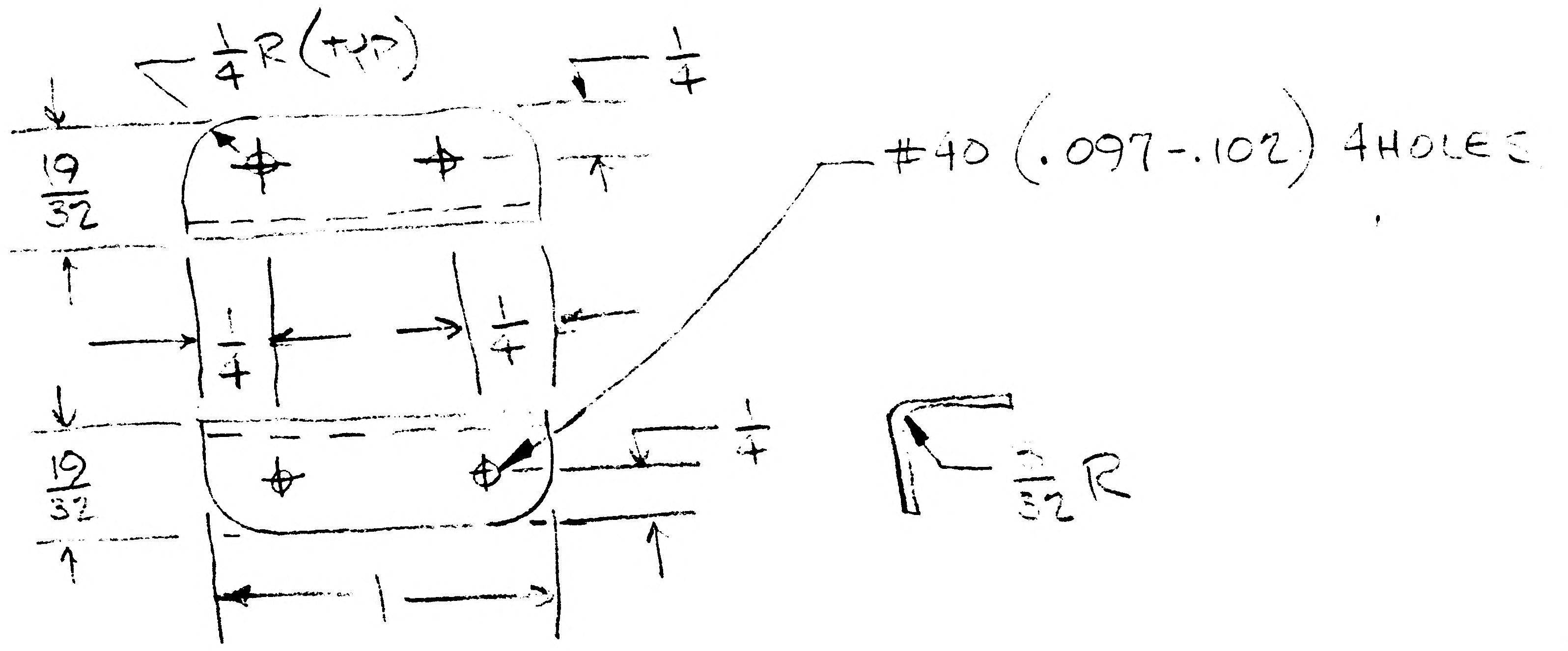
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18233
EO NO. A1
CONTROL INFO NO. LDW280A 5159

ADD -19 CLIP - .040 AL ALLOY SHEET ~ 7075 BARE ~ QQ-A-250/12
FINISH #33 ~ HT TR T6. N/A LDW280-23519, LM-3(53), 2REQD/ASSY.



2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: THERMAL REQMTS FOR RTG SHIELD CCA#359

DESCRIPTION OF EO: ADDED -19.

GAEC EO RELEASE: LE 1/27/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (53)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD — REWORK / SCRAP

APPROVED BY									
DATE	1/24/67	1/25/67		1/23/67			1/24/67		
2	V.D.I.	THERMAL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY: C
DRAWING TITLE: CLIP ~ D.S. ~ SEQ ~ LH END CLOSEURE ~ RTG SHIELD SPT.
DRAWING NO. LDW280-18233
EO NO. A1

ISSUED BY GUS HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

01 NAS 9-1100

LDW280-18234

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23579	LM-3(33)	2 EA
PART NO. LDW280-18234-11,-17 & -19		GAEC SCH NO. 51-Z	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23579	LM-3(33)	1 EA
PART NO. LDW280-18234-13,-14, -15,-16 & -21		GAEC SCH NO. 51-Z	

CCA# 359 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED 21

GRUMMAN REC INFO

PRIM NO. LE(001) 207 MP-14 1-13-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100 LINE ITEM # 1 DOCUMENTATION TYPE II

DRAWN BY	HERB.SCHWEIER 12/8/66	RELIABILITY	
LAYOUT BY	G.HANSMANN		
CHECKED BY	R.SMITH 12-30-66		
GR LEADER	1/11/67		
VEH DES INT	J. Pusateri 1/2/67		
STRUCTURES	N.M. 1/12/67	PROJ ENGR	1/12/67
STRUCTURES	FB 1/12	REL GROUP	Botti 1-12-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TEE
DESCENT STAGE~SEQ LH END
CLOSURE~RTG SHIELDING

SIZE B CODE IDENT NO. 26512 LDW280-18234

SCALE NONE SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 1-15-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18234-21	E		ANGLE	AL ALY EXTR	QQ-A-200/11	7075-T6511	AND10134-0702×11½	NONE	88	
	-19			TEE				DIE NO.33481×1½			
	-17							DIE NO.33481×1¼			
	-16							DIE NO.33481×2¼			
	-15							DIE NO.33481×2¼			
	-14							DIE NO.33481×2¾			
	-13							DIE NO.33481×2¾			
	LDW280-18234-11	E		TEE	AL ALY EXTR	QQ-A-200/11	7075-T6511	DIE NO.33481×3¼	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						83	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

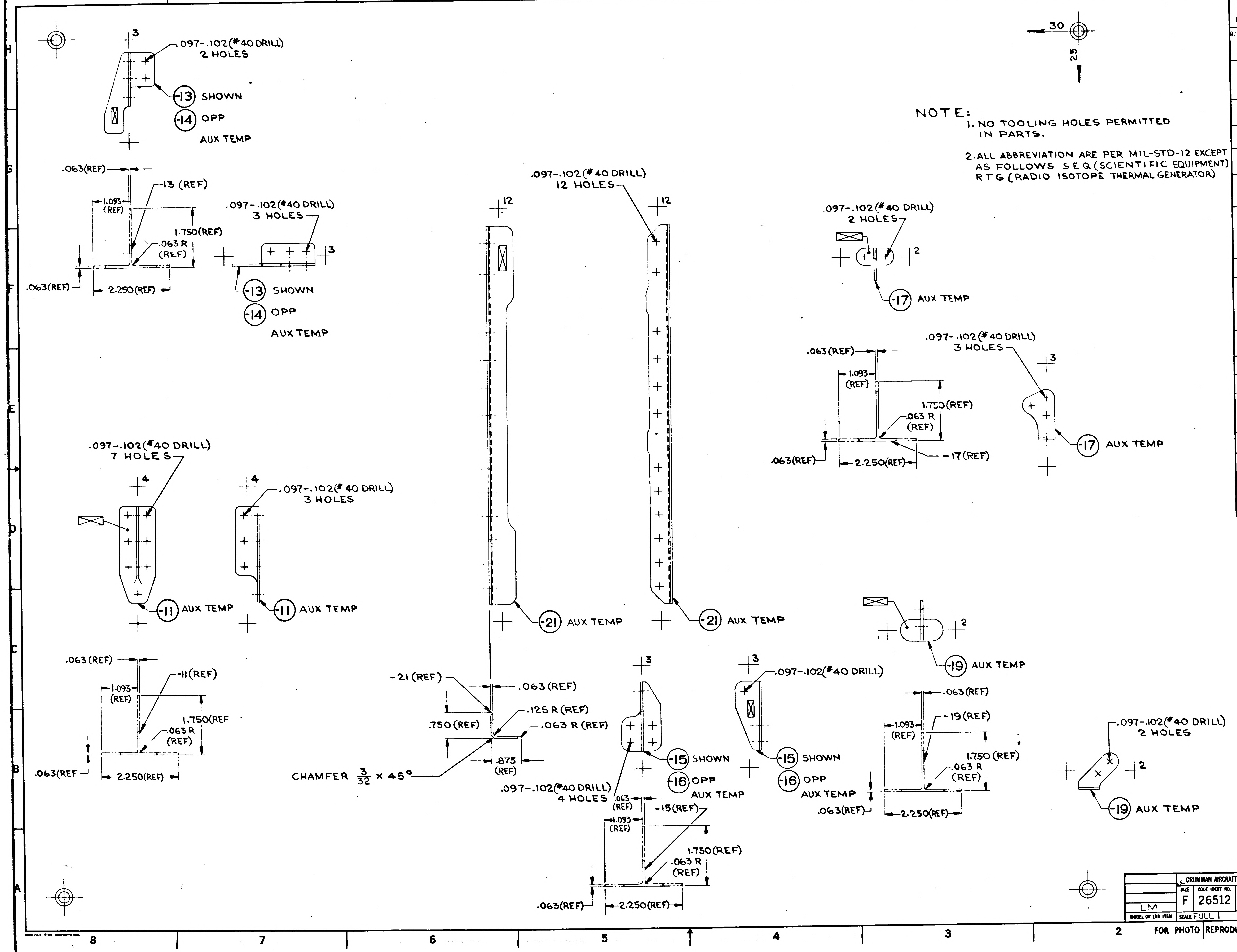
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18234
SCALE NONE
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100


8
7
6
5
4
3
TRAM END
2
1
H
G
F
E
D
C
B
A
.097-.102(#40 DRILL)
2 HOLES
3
-13 SHOWN
-14 OPP
AUX TEMP
.063(REF)
-13 (REF)
1.093
(REF)
1.750(REF)
.063 R
(REF)
.063(REF)
2.250(REF)
.097-.102(#40 DRILL)
3 HOLES
3
-13 SHOWN
-14 OPP
AUX TEMP
.097-.102(#40 DRILL)
7 HOLES
4
-11 AUX TEMP
4
.097-.102(#40 DRILL)
3 HOLES
-11 AUX TEMP
.063 (REF)
-11(REF)
1.093
(REF)
1.750(REF
.063 R
(REF)
.063(REF
2.250(REF)
.097-.102(#40 DRILL)
12 HOLES
12
12
-21 AUX TEMP
-21 AUX TEMP
-21 (REF)
.063 (REF)
.125 R (REF)
.750 (REF)
.063 R (REF)
.875
(REF)
CHAMFER $\frac{3}{32}$ × 45°
3
-15 SHOWN
-16 OPP
AUX TEMP
.097-.102(#40 DRILL)
4 HOLES
.063
(REF)
-15(REF)
1.093
(REF)
1.750(REF)
.063 R
(REF)
.063(REF)
2.250(REF)
3
.097-.102(#40 DRILL)
-15 SHOWN
-16 OPP
AUX TEMP
.063(REF)
-19(REF)
1.093
(REF)
1.750 (REF)
.063 R
(REF)
.063(REF)
2.250(REF)
30
25
.097-.102 (#40 DRILL)
2 HOLES
2
-17 AUX TEMP
.063(REF)
1.093
(REF)
1.750(REF)
.063 R
(REF)
.063(REF)
2.250(REF)
-17(REF)
.097-.102(#40 DRILL)
3 HOLES
3
-17 AUX TEMP
2
-19 AUX TEMP
.097-.102(#40 DRILL)
2 HOLES
2
-19 AUX TEMP

NOTE:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ALL ABBREVIATION ARE PER MIL-STD-12 EXCEPT AS FOLLOWS SEQ (SCIENTIFIC EQUIPMENT) RTG (RADIO ISOTOPE THERMAL GENERATOR)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

LDW280-18234

LDW280-18234

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE F	CODE IDENT NO. 26512	LDW280-18234	
MODEL OR END ITEM LM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

NAS 9-1100

LDW280-18235

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23579	LM-3(33)	2
PART NO. LDW280-18235-19		GAEC SCH NO. 51-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23579	LM-3(33)	1 EA
PART NO. LDW280-18235-11,-13,-15 & -17		GAEC SCH NO. 51-2	

CCA # 359 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-19	PRIM NO. 207	VE(001) MP-14	1-13-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	HERB. SCHWETER 12/28/66	RELIABILITY	
LAYOUT BY	G. HANSMANN G.H.		
CHECKED BY	11-29-66		
GR LEADER	1/11/67		
VEH DES INT	1/12/67		
STRUCTURES	1/12/67	PROJ ENGR	1/12/67
STRUCTURES	1/12/67	REL GROUP	Botte 1-12-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE~SEQ LH END
CLOSURE RTG SHIELDING

SIZE	CODE IDENT NO.	
B	26512	LDW280-18235
SCALE	NONE	SHEET 1.00 OF 3

CDR 1-15-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18235-19	E		STRAP	AL ALY SH	QQ-A-250/12	7075-T6	.063 × 2 × 10	NONE	88	
	-17			DOUBLER				.032 × 3 × 7			
	-15							.050 × 2 × 7			
	-13							.032 × 3 × 8			
	LDW280-18235-11	E		DOUBLER	AL ALY SH	QQ-A-250/12	7075-T6	.160 × 4½×8	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18235

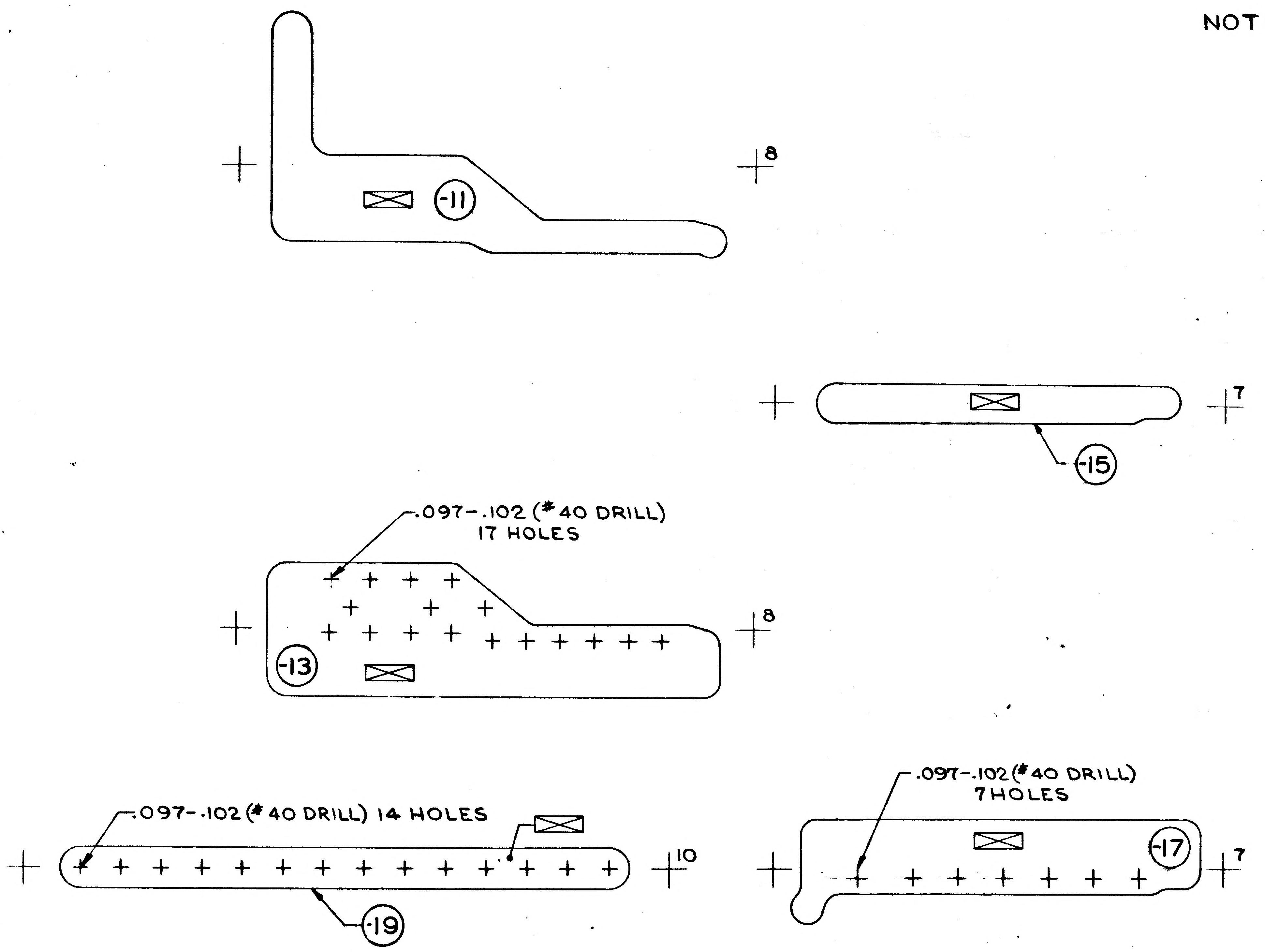
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100



NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ALL ABBREVIATIONS ARE PER MIL-STD-12 EXCEPT AS FOLLOWS SEQ (SCIENTIFIC EQUIPMENT), RTG (RADIO ISOTOPE THERMAL GENERATOR)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	D	26512	LDW280-18235

SCALE FULL
SHEET 3-00

FOR PHOTO REPRODUCTION

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18235
EO NO. A1
CONTROL INFO NO. LDW280A 8692

IN -19 MOD/BLK, REMOVE N/A LDW280-23579, 2 REQD/MOD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1861 CCA 498-2 OK	5

REASON FOR EO
RTG SHIELDING REMOVED
(REF LCR 1861)

DESCRIPTION OF EO
IN -19 MOD/BLK, REMOVED LM 3(33), N/A LDW280-23579 2 REQD/MOD

Ⓡ GAEC C EO RELEASE
JL 8-23-7

EFFECTIVITY

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
				—	NM			
DATE 8/22/67				—	8/23/67		8/23/67	8-23-67
8/16/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY C
DRAWING TITLE DOUBLER DESCENT STAGE SEQ LH END CLOSURE RTG SHIELDING
DRAWING NO. LDW280-18235
EO NO. A1

8/26
ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10, 2.00 & 3.00						EO A1 Ⓡ	EO A1 INITIAL DRAWING RELEASE. PARTS MADE PER E.O.	LM-2 THRU LM-15	NOT	REQD	CIOFFI 1-27-67 EG		
B	1	1.00, 2.00, 3.00,						EOB1	TO FLD & B/M ADDED -15, -16, -17 & -18, IN M/B REMOVED LM-2 & LM-3 FROM -11 & -12 ADDED -15 & -16 FOR LM-2 & -17 & -18 FOR LM-3 N/A LDW280-52627 -15, -16, -17 & -18 MAY BE MADE BY REWORKING -11 & -12	LM-2(32) LM-3(33)	NOTED		D. STELLABOTTE 9-24-68		
	2	1.00, 2.00, 3.00					✓	EOB2 LCD-1244	ADDED -19 & -20, REMOVED -15 & -16	LM-2(32)		-15 -16			
	3	1.00, 2.00, 3.00					✓	EOB3	IN F/D, B/M & M/B REMOVED -19 & -20 REQM'TS	LM-2(32)		-19 -20			
	4	1.00, 2.00, 3.00					✓	EOB4	IN FLD, B/M & M/B CREATED -21 & -22 REMOVED -17 & -18	LM-3(33)		-17 & -18			
	5	3.00					✓	EOB5	TRIMMED -11 & -12	LM-4(34) THRU LM-15(45)	✓				
	6	1.00, 2.00, 3.00,					✓	EOB6	IN FLD, B/M & M/B CREATE -24, -13-1 & -14-1 LM-3 THRU LM-15 REMOVED -22, -13, & -14 FROM LM-3 THRU LM-15. -13-1 & -14-1 CAN BE REWORKED FROM -13 & -14	LM-3(33) THRU LM-15(45)	NOTED	-22	E.C.G.		
	7	3.00					✓	EO B7 Ⓡ	(REF EO-B5) ON -12, ADDED 4 7/16 DIM, 1/8 R (6) WAS (4), 7/32 R (3) WAS (2).	LM-4 (34) THRU LM-15(45)	✓		N.O. 11-1-68		3-14-68

CHG APPROVED

LTR	~~GROUP LDR~~	VEH. DES. INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
A		2/20/67								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18236	B
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

CL	QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C		LDW280-18236-24	E		PLATE	AL ALLOY SH	QQ-A-250/4	2024-T81	.004x6x10	NONE	88	
C		LDW280-18236-21	E		PLATE	AL ALLOY SH	QQ-A-250/4	2024-T81	.004x6x10	NONE	88	
C		LDW280-18236-14-1	E		COVER	AL ALLOY SH	QQ-A-250/4	2024-T81	.004x4x5	NONE	88	
C		LDW280-18236-13-1	E		COVER	AL ALLOY SH	QQ-A-250/4	2024-T81	.004x4x5	NONE	88	
C		LDW280-18236-14	E		COVER	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 X 4 X 5	NONE	88	
C		LDW280-18236-13	E		COVER	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 X 4 X 5	NONE	88	
C		LDW280-18236-12	E		PLATE	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 X 6 X 10	NONE	88	
C		DW280-18236-11	E		PLATE	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 X 6 X 10	NONE	88	

C.L. = CLEANLINE LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18236	B

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

LDW280-18236 B

PART NO. LDW280-18236 -21 & -24

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52627	LM-3(33)	1 EA

PART NO. LDW280-18236 -13 & -14

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52627	LM-2(32)	1 EA

PART NO. LDW280-18236 -11 & -12

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52627	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-52627	LM-4(34)	1 EA

PART NO. LDW280-18236 -13-1 & -14-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO. 50-2	REQD PER MODULE OR END ITEM
LM	LDW280-52627	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
LM	LDW280-52627	LM-3(33)	1 EA

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00							
REV	B	B	B	B							
SHEET											
REV											
SHEET											
REV											

LAST SECT LTR USED		GRUMMAN REL INFO B
LAST DASH NO. USED	-24	PRIM NO. 207 · JK(001) ME-18 3/14/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.	NAS 9-1100	LINE ITEM	DOCUMENTATION TYPE II
DRAWN BY	N.CIOFFI 1-27-67	RELIABILITY	
LAYOUT BY	V.CHRISTINA 1-5-67		
CHECKED BY	EG 2-2-67		
~~GR LEADER~~			
VEH DESINT	2/4/67		
STRUCTURES	2/21/67	PROJ ENGR	R. M. Carlson 2-23-67
STRUCTURES	2/21	REL GROUP	2-23-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE INTERSTAGE-
METEOROID PROTECTION

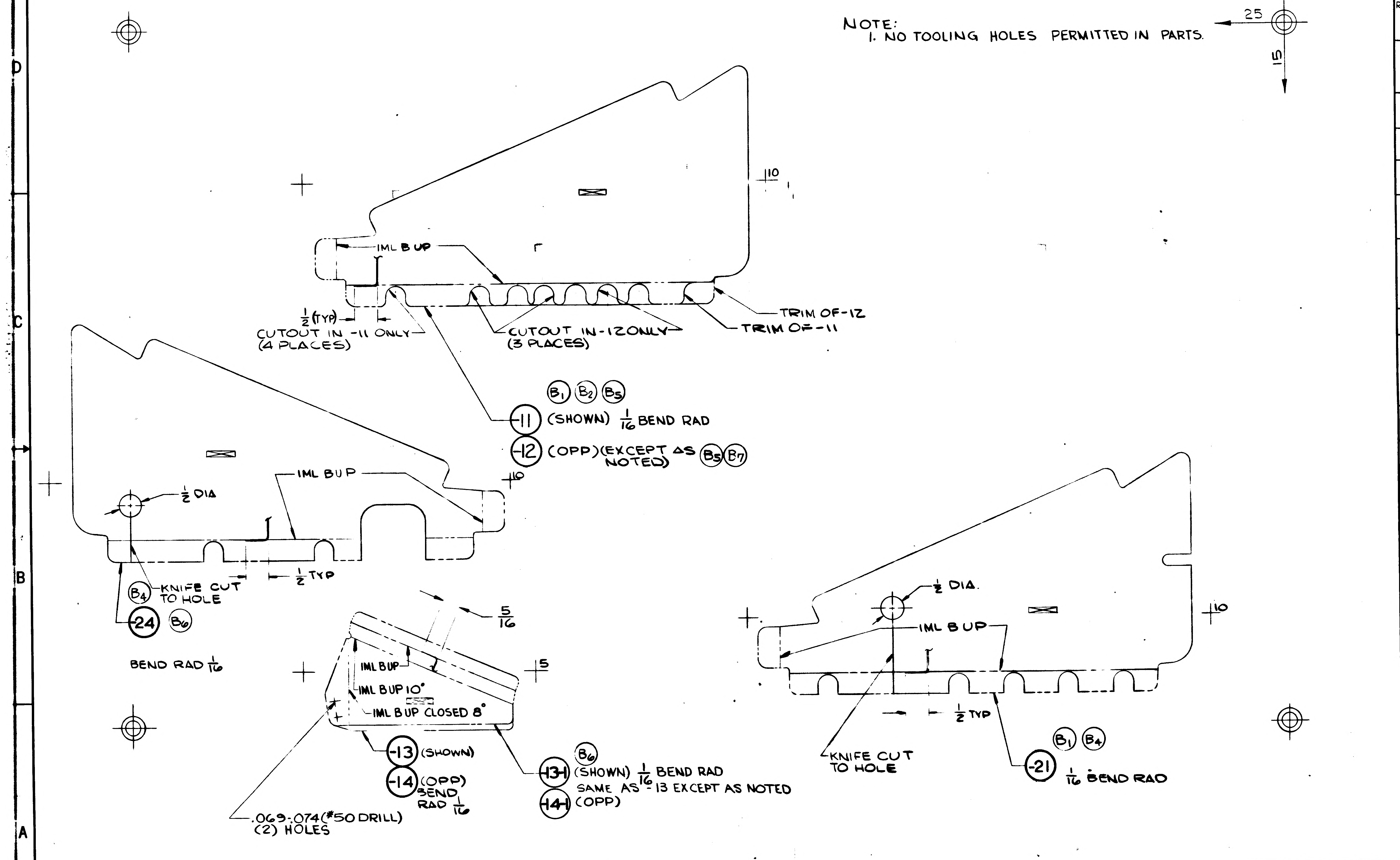
SIZE	CODE IDENT NO.	DWG NO.	REV
B	26512	LDW280-18236	B
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.


25
15
10
IML B UP
½ (TYP)
CUTOUT IN -11 ONLY (4 PLACES)
CUTOUT IN -12 ONLY (3 PLACES)
TRIM OF -12
TRIM OF -11
B1 B2 B5
-11 (SHOWN) 1/16 BEND RAD
-12 (OPP) (EXCEPT AS NOTED) B5 B7
10
IML B UP
½ DIA
B4 KNIFE CUT TO HOLE
-24 B6
½ TYP
BEND RAD 1/16
5/16
5
IML B UP
IML B UP 10°
IML B UP CLOSED 8°
-13 (SHOWN)
-14 (OPP) BEND RAD 1/16
.069-.074 (#50 DRILL) (2) HOLES
B6
-13 (SHOWN) 1/16 BEND RAD
SAME AS -13 EXCEPT AS NOTED
-14 (OPP)
½ DIA.
IML B UP
10
½ TYP
KNIFE CUT TO HOLE
B1 B4
-21 1/16 BEND RAD

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18236B

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE D	CODE IDENT NO. 26512	LDW280-18236	B
MODEL OR END ITEM	SCALE-FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1

01 NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1381
CONTROL INFO NO. LDW280B7425

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18223 ✓	B3	SEE DWG
-18224 ✓	B1	↑
-18225 ✓	A1	
-18236 ✓	C1	
-18238	A2	
-18265	A3	
-18266	A4	
-18267	A3	
-18268	A3	↓
LDW280-18271	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: SK 4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(15)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	4/1/69			4-2-69	4/8/69		4/9/69	4/22/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1381

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PT. 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1524
CONTROL INFO NO. LDW 280B 8108

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18466 ✓	SEE DWG	A6
224 ✓		B2
225 ✓		A2
236 ✓		C2
238		A3
265		A4
266		A5
267		A4
268		A4
LDW280-18271	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 29

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQM'TS

GAEC EO RELEASE: 8-6-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	~~PBT~~				N			Lauman
DATE	7-29-69 VDI			7-30-69	8/1/69		8/6/69	8-7-69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1524

8-7-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

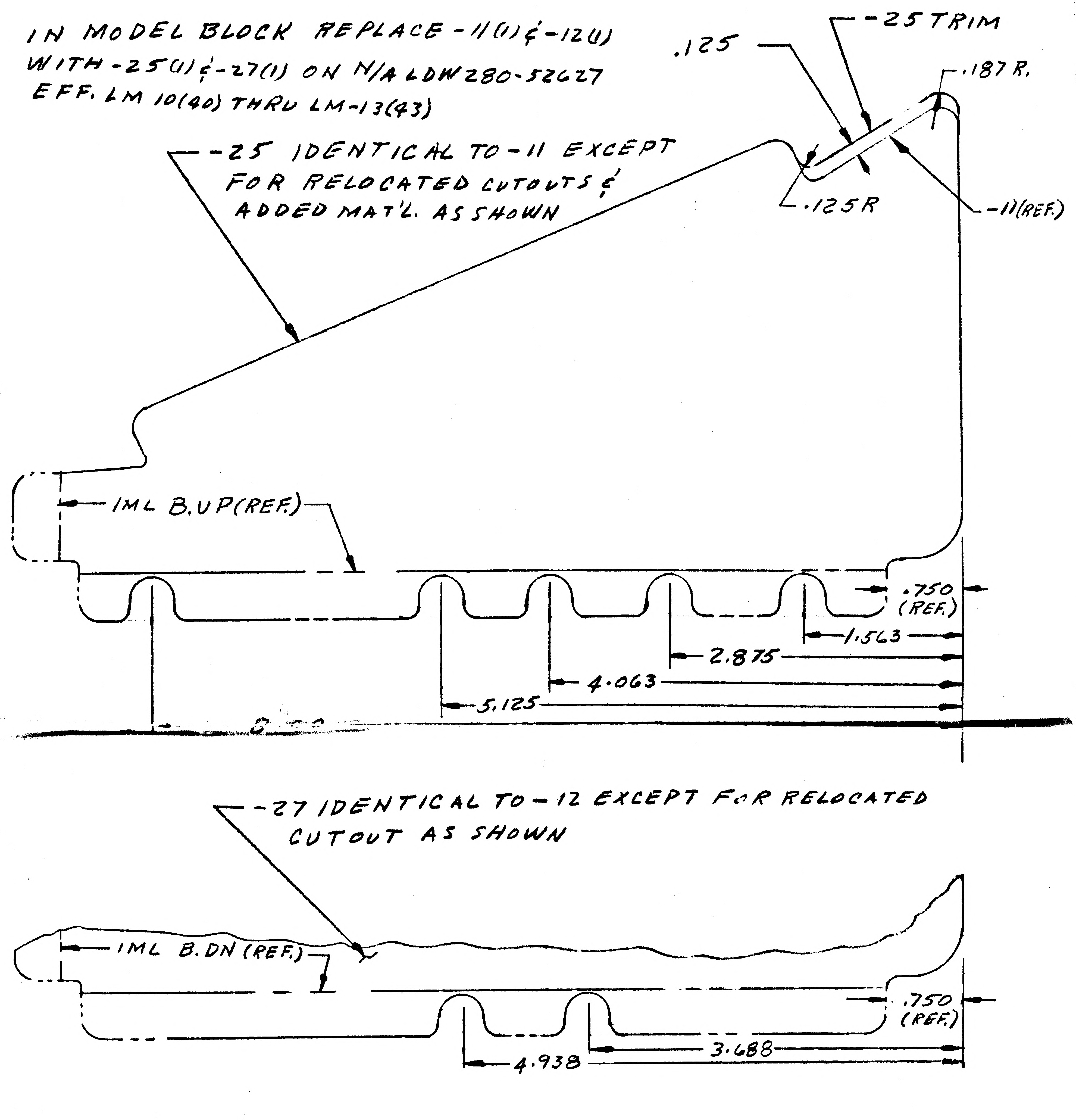
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO.	NOTED	EO NO.	
CONTROL INFO NO.	LM-5-23421		

IN MODEL BLOCK REPLACE -11(1) & -12(1)
WITH -25(1) & -27(1) ON N/A LDW280-52627
EFF. LM 10(40) THRU LM-13(43)


-25 IDENTICAL TO -11 EXCEPT FOR RELOCATED CUTOUTS & ADDED MAT'L. AS SHOWN
.125
-25 TRIM
.187 R.
.125R
-11(REF.)
IML B.UP(REF.)
.750 (REF.)
1.563
2.875
4.063
5.125
-27 IDENTICAL TO -12 EXCEPT FOR RELOCATED CUTOUT AS SHOWN
IML B.DN (REF.)
.750 (REF.)
3.688
4.938

DWG NO	EO NO
LDW280-18236	C3
N.H.A.	EO NO
LDW 280-52627	B8

N. H. A. DESCRIPTION OF EO

ON-1 & -2 REPLACED LDW280-18236-11 & -12 WITH LDW280-18236-25 & -27 RESPECTIVELY

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG 5

REASON FOR EO: TO AGREE WITH REVISED FITH SHIELD

DESCRIPTION OF EO: REPLACED -11(1) & -12(1) WITH -25(1) & -27(1) RESPECTIVELY

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40) THRU LM-13(43)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	10-9-70			10/9/70	10/7/70	10-7-70	10/9/70	10/7/70
✓			✓		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

Ⓡ GAEC / EO RELEASE

KC

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE - D/S - INTERSTAGE METEROID PROTECTION	NOTED	

ISSUED BY LIAISON C. COSMA X9491 SECTION U.D.I. GROUP NO. 280 PL 25

01
NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1							EO.A1	EO.A1 INITIAL DWG. RELEASE PARTS MADE PER EO.	NOT	RE	Q'D	T. MAYBO 1-16-67.	1-26-67	1-28-67
	2	3.00						EO.A2 Ⓟ	ON-15 : ADDED DIM 7/8 & CORRECTED PROJECTION DWG. CORRECTION. D.G.						

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHT	RELIABILITY					
A		1/26/67	WJH 1/26/67								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18237	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18237-15	E	STIFFENER	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 3 x 6	NONE	88	
		LDW280-18237-13	E	ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 3 x 6	NONE	88	
		LDW280-18237-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 5 x 8	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

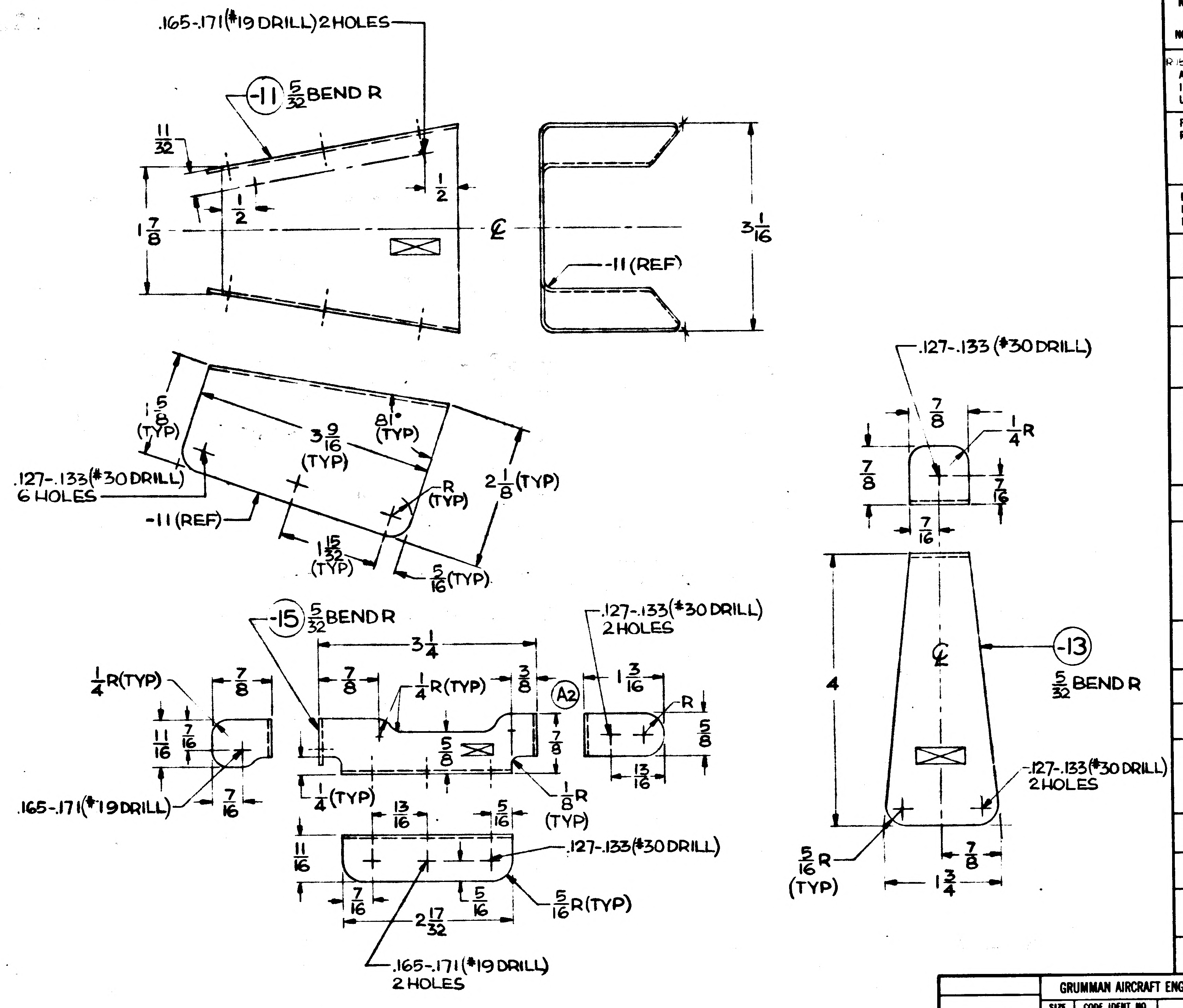
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18237	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



.165-.171(#19 DRILL) 2 HOLES
-11 5/32 BEND R
11/32
1/2
1/2
1 7/8
℄
3 1/16
-11 (REF)
1 5/8 (TYP)
3 9/16 (TYP)
81° (TYP)
.127-.133 (#30 DRILL) 6 HOLES
-11 (REF)
R (TYP)
2 1/8 (TYP)
1 15/32 (TYP)
5/16 (TYP)
.127-.133 (#30 DRILL)
7/8
1/4 R
7/8
7/16
7/16
℄
-13
5/32 BEND R
4
.127-.133 (#30 DRILL) 2 HOLES
5/16 R (TYP)
7/8
1 3/4
-15 5/32 BEND R
3 1/4
.127-.133 (#30 DRILL) 2 HOLES
1/4 R (TYP)
7/8
7/8
1/4 R (TYP)
3/8
A2
1 3/16
R
11/16
7/16
5/8
7/8
5/8
.165-.171 (#19 DRILL)
7/16
1/4 (TYP)
1/8 R (TYP)
13/16
13/16
5/16
11/16
.127-.133 (#30 DRILL)
7/16
2 17/32
5/16
5/16 R (TYP)
.165-.171 (#19 DRILL) 2 HOLES

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18237	A
	SCALE FULL		SHEET	

LDW280-18237 A

LDW280-18237 A

01 NAS 9-1100

LDW280-18237 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28672	LTA-8(18)	8 EA
PART NO. LDW280-18237-11, -13 & -15		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED –

LAST DASH NO. USED -15

GRUMMAN REL INFO A

PRIM NO.	K(001)		
215	MP-14	A-1-28	7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

DRAWN BY T. MAYBO 1/16/67

LAYOUT BY ROGERS

CHECKED BY EG 1-20-67

GR LEADER

VEH DES INT 1/23/67

STRUCTURE 1/26/67

STRUCTURE 1/26

WEIGHT

RELIABILITY

PROJ ENGR 1/26/67

REL GROUP 1/28/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

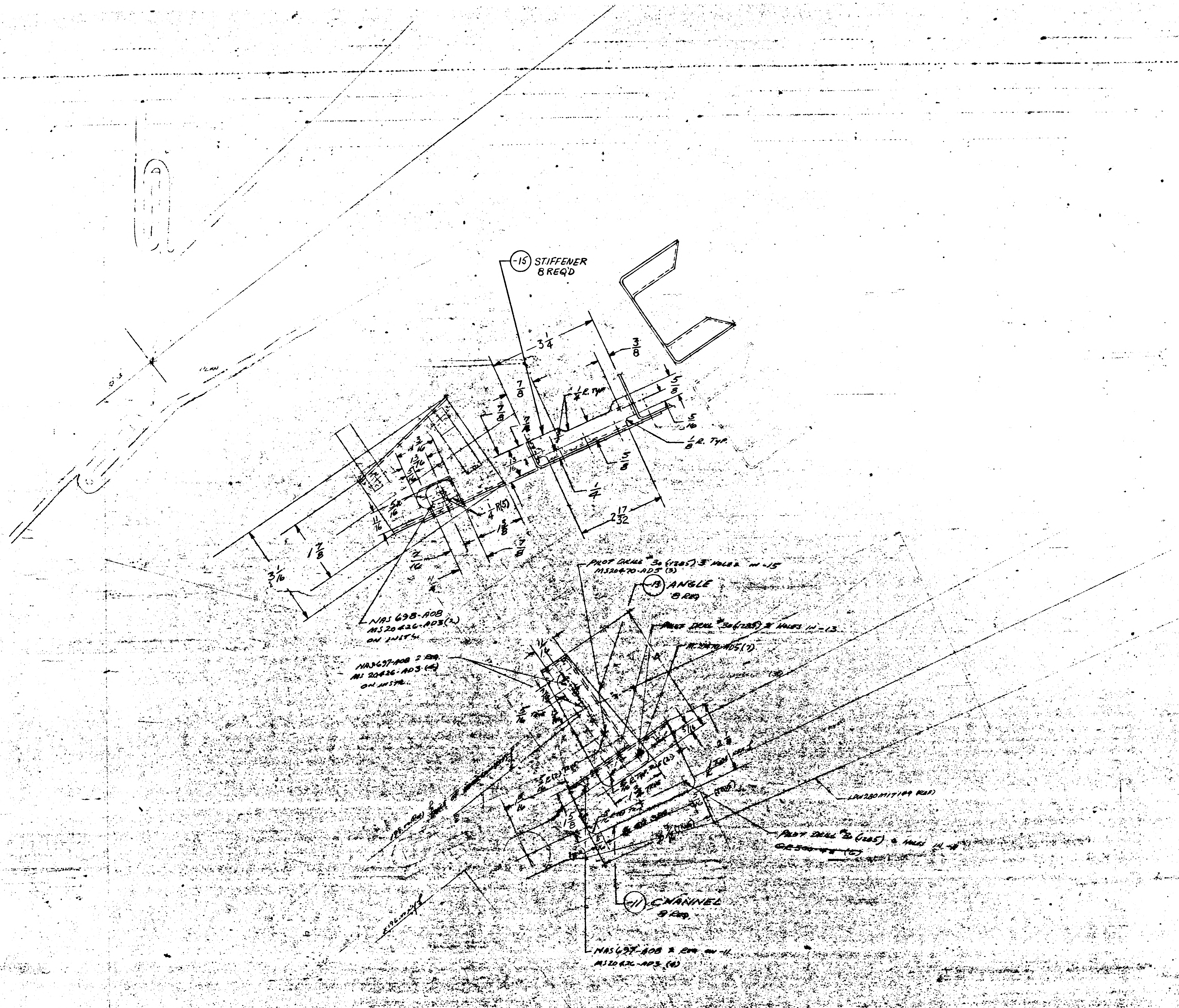
SUPPORT
DESCENT STAGE - GROUND SPT EQUIP.
INSTRUMENTATION & HEATER LINES

SIZE B | CODE IDENT NO. 26512 | LDW280-18237 | A

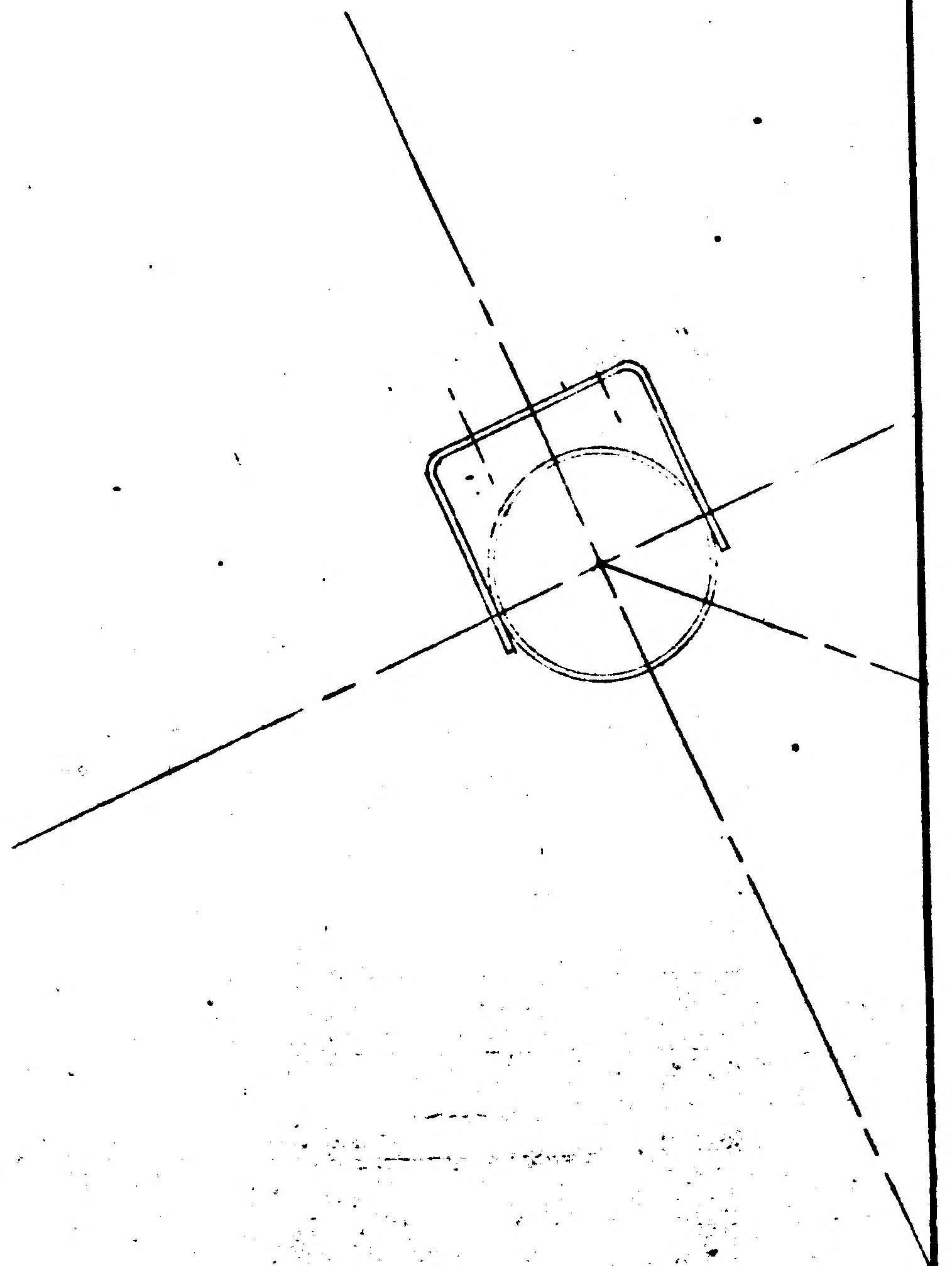
SCALE NONE | SHEET 1.00 OF 3

ENG 77 1 12-65

01 NAS 9-1100



-15 STIFFENER
8 REQ'D
$3\frac{1}{4}$
$\frac{3}{8}$
$\frac{5}{8}$
$\frac{5}{16}$
$\frac{7}{8}$
$\frac{1}{4}$ R. TYP.
$\frac{1}{8}$ R. TYP.
$\frac{5}{8}$
$\frac{1}{4}$
$2\frac{17}{32}$
$\frac{1}{4}$ R(5)
$1\frac{3}{8}$
$\frac{7}{8}$
$\frac{7}{16}$
$\frac{11}{16}$
$\frac{5}{16}$
$1\frac{7}{8}$
$3\frac{1}{16}$
NAS 698-A08
MS20426-AD3(2)
ON INST'L
PILOT DRILL #30 (.1285) 3 HOLES IN -15
MS20470-AD5 (3)
-13 ANGLE
8 REQ
PILOT DRILL #30 (.1285) 7 HOLES IN -13
MS20470-AD5 (7)
NAS697-A08 2 REQ.
MS 20426-AD3 (4)
ON INSTL.
$1\frac{1}{16}$
$\frac{5}{16}$
$\frac{5}{16}$
$1\frac{5}{8}$
LDW280M17149 REF
PILOT DRILL #30 (.1285) 6 HOLES IN -11
~~GR500~~ (6)
-11 CHANNEL
8 REQ.
NAS697-A08 2 REQ IN -11
MS20426-AD3 (4)



THIS IS AN ORIGINAL

ALL INFO OTHER THEN THI
FOR REF ONLY

MATL: 3OCE AL. ALLOY S.

FINISH: #88 (ANODIZE) LS.

TOL: FRACTIONAL $\pm\frac{1}{32}$ A

CONTRACT # NAS 9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

LTA-8 (18) ONLY

N/A LDW 280-2 CO

I & T = E

* DRAWING

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG

REASON FOR EO

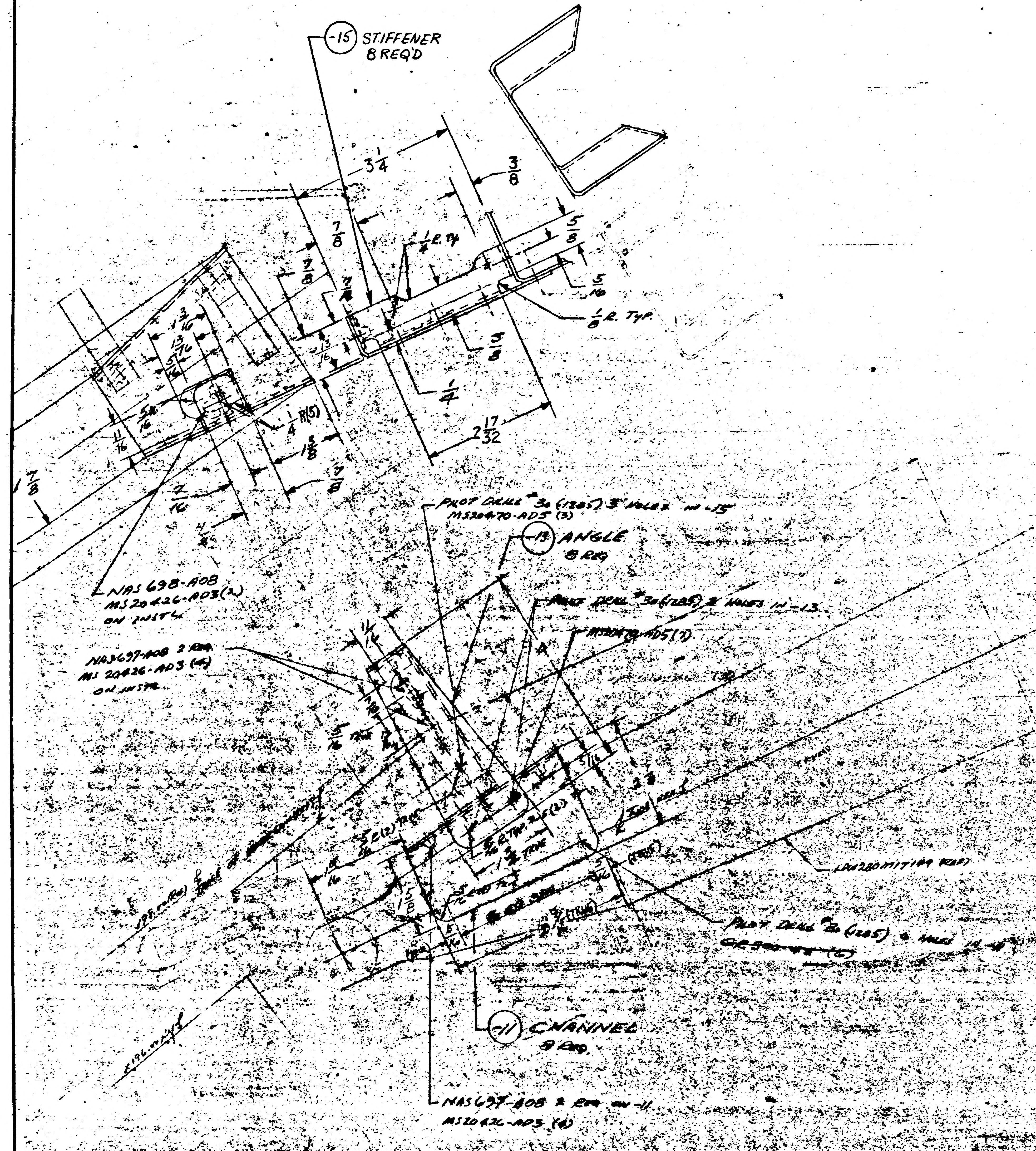
TO PROVIDE SUPPORT FOR
INSTRUMENTATION & HEATER LINES

MODEL	EFFECTIVITY PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT
LEM		LTA-8 (18)	

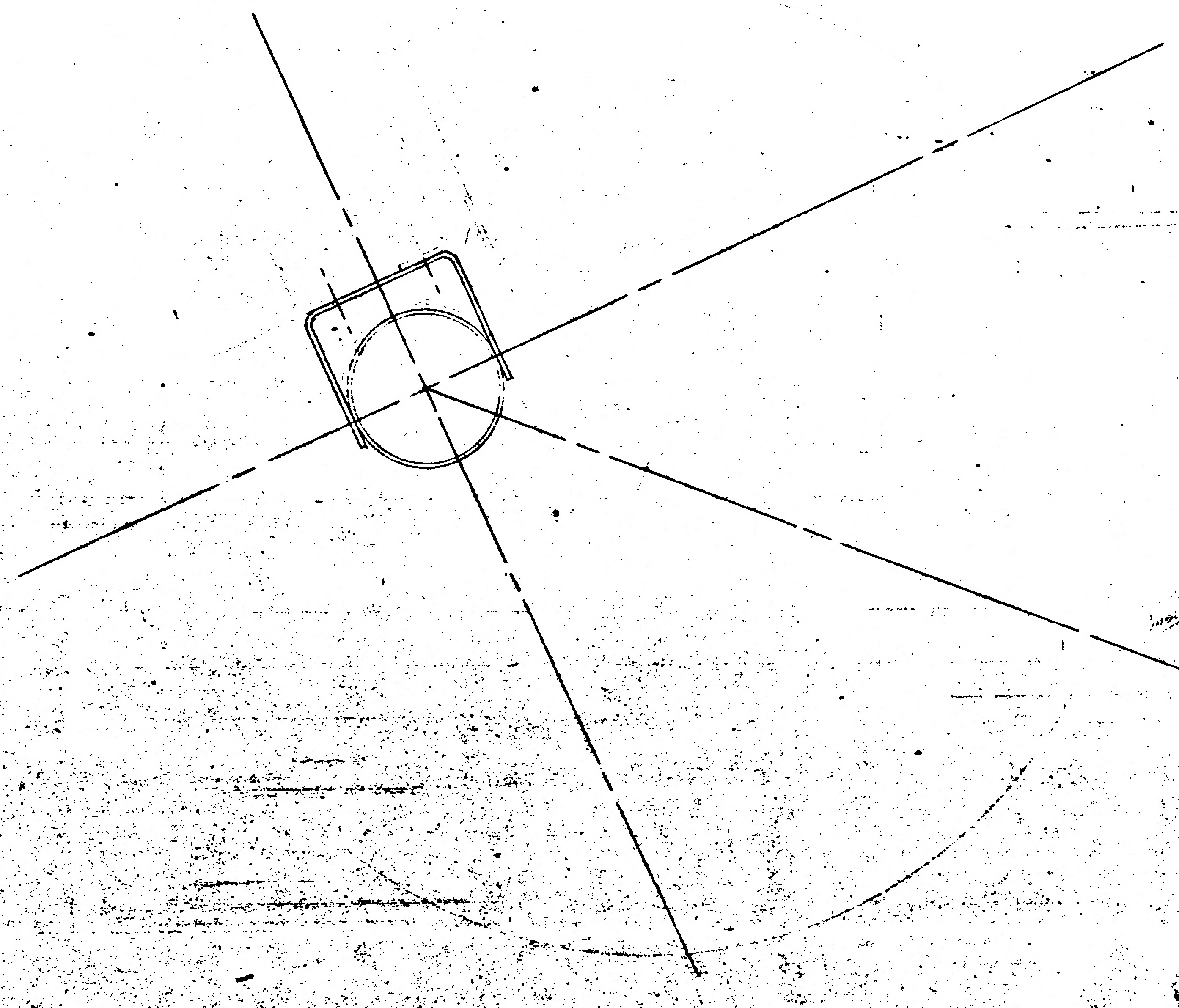
ISSUED BY ROGERS #1392 FLANDERS 1224 SECTION VEH. DES. W7

ENG 22.3 REV 3-65

01/02 NAS 9-1100



-15 STIFFENER
8 REQ'D
$3\frac{1}{4}$
$\frac{3}{8}$
$\frac{7}{8}$
$\frac{1}{4}$ R. TYP
$\frac{5}{8}$
$\frac{5}{16}$
$\frac{1}{8}$ R. TYP.
$\frac{3}{8}$
$\frac{1}{4}$
$2\frac{17}{32}$
$1\frac{3}{16}$
$\frac{13}{16}$
$\frac{5}{16}$
$\frac{11}{16}$
$\frac{1}{4}$ R(5)
$1\frac{3}{8}$
$\frac{7}{16}$
$1\frac{7}{8}$
NAS 698-A08
MS 20426-AD3 (2)
ON INST'L
PILOT DRILL #30 (.1285) 3 HOLES IN -15
MS 20470-AD5 (3)
-13 ANGLE
8 REQ
PILOT DRILL #30 (.1285) 2 HOLES IN -13
MS 20470-AD5 (2)
NAS 697-A08 2 REQ
MS 20426-AD3 (4)
ON INST'L
$\frac{5}{16}$ TRUE
$1\frac{5}{8}$
$1\frac{1}{4}$ TRUE
LDW280-M11149 REF
PILOT DRILL #30 (.1285) 4 HOLES IN -11
-11 CHANNEL
8 REQ
NAS 697-A08 2 REQ ON -11
MS 20426-AD3 (4)



THIS IS AN ORIGINAL E.O.

ALL INFO OTHER THAN THAT REQD. FOR MANUFACTURE OF LDW280-18237-11,-13 & -15 FOR REF ONLY.

MAT'L: BARE AL. ALLOY SHT .050-2024-T3 ~ QQ-A-250/4 B.R. $\frac{5}{32}$

FINISH: #8B (ANODIZE) LSP 14-9030

TOL: FRACTIONAL $\pm\frac{1}{32}$ ANGLE $\pm\frac{1}{2}$ DECIMAL $\pm.020$

CONTRACT # NAS 9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

LTA-8 (18) ONLY

N/A LDW280-~~2~~28672 CONTROL LDW280A4550

I & T = E

* DRAWING NOT MADE

**

02/02 NAS 9-1100

DETAIL SPEC REQD | CLASS II ENGRG CHG | CLASS I ENGRG CHG

CONTROL INFO NO. LDW280A4550

REASON FOR EO: TO PROVIDE SUPPORT FOR INSTRUMENTATION & HEATER LINES

DESCRIPTION OF EO: E.O. A1 INITIAL DRAWING RELEASE
PARTS MADE PER E.O.

GRUMMAN EO RELEASE FR 12/23/66 PC. 752

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8 (18)	

DRAWING REVISION REQD: REVISE DWG * | RECORD EO

DISPOSITION OF PARTS: NOT REQD. REWORK | SCRAP

		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	
BY	JaP			JKS			HAW	
DATE	12/22/66	12-22-66		12/22/66	12/22/66		12-22-66	12-22-66
5	VDJ							

PRIORITY: C

DRAWING TITLE: SUPPORT
D.S.-GSE. INSTRUMENTATION & HEATER LINES

ENGINEERING ORDER

DRAWING NO. LDW280-18237

EO NO. A1

ISSUED BY ROGERS 4992 FLANDERS SECTION VEH. DES. INT. GROUP NO. 335 35

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 22.3 REV 3-65

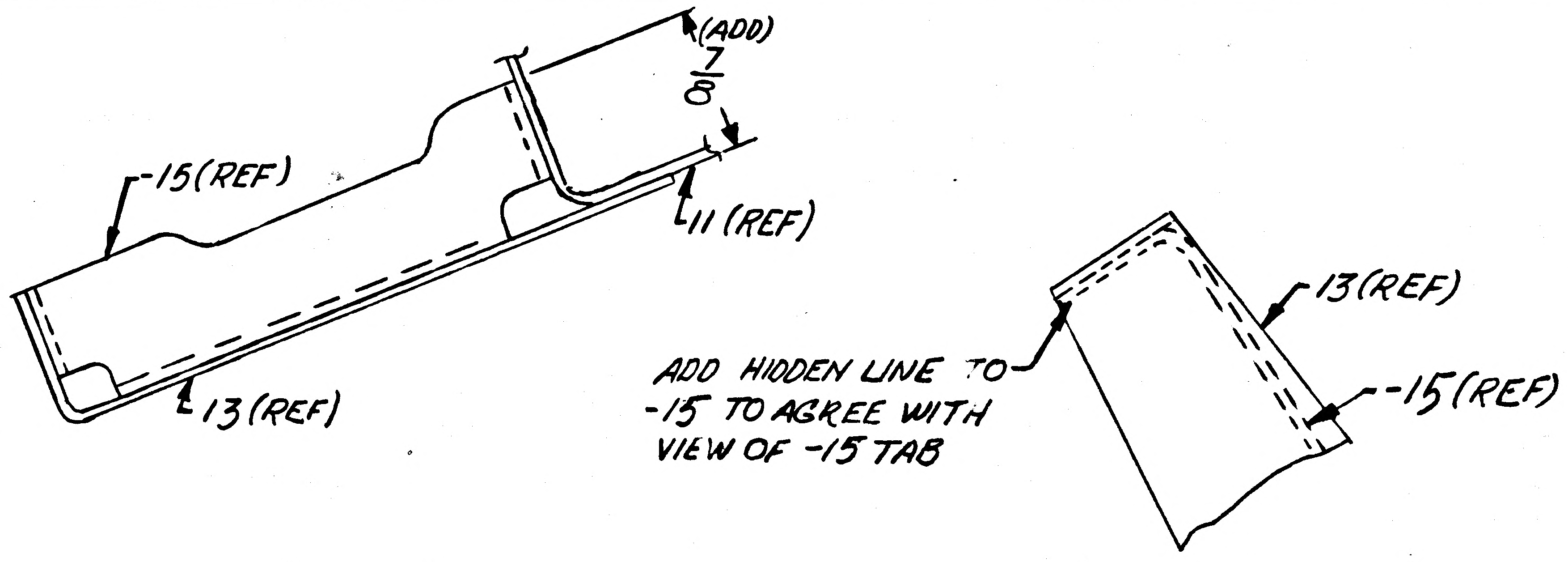
C.R.R. 12-22-66

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18237
EO NO. A2
CONTROL INFO NO. LM-5-11519



ADD HIDDEN LINE TO -15 TO AGREE WITH VIEW OF -15 TAB

RELEASED BY LIAISON 5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: TO PROVIDE CORRECT INFORMATION ON DWG.

DESCRIPTION OF EO: ON -15: ADDED DIM 7/8 & CORRECTED PROJECTION
DWG. CORRECTION

GAEC EO RELEASE: C LE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D.	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT REQD. SCRAP

APPROVED BY	WT ALW			~	RH	CH		
DATE	12/30			~	12-30-66	12-30	1-6-67	1-3-67
6	VD1	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: E
DRAWING TITLE: SUPPORT - D/S - GSE INSTRUMENTATION & HEATER LINES
DRAWING NO.: LDW280-18237
EO NO.: A2

ISSUED BY E.J. COMISKEY, 6455, WITES
SECTION VD1
GROUP NO. 335
PL 5

01

NAS 9-1100

LDW280-18238

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-54791	LM-4(34)	1

PART NO. LDW280-18238-11

GAEC SCH NO. 50-Z

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -11

GRUMMAN REC INFO

PRIM NO.	GE(001)		EMF
207	MP-14	1-11-7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY M.H.MULLER 1·3·67
LAYOUT BY A. Richey 1/10/67
CHECKED BY R.SMITH 1·5·67
GR LEADER 1/10/67
VEH DES INT J. Pusateri 1/10/67
STRUCTURES 1/10/67
STRUCTURES 1/10/67
WEIGHTS
RELIABILITY
PROJ ENGR R.M. Barbu 1-10-67
REL GROUP 1/10/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE~BEAM PANEL
ELECTR LINES SUPPORT~QUAD II

SIZE B
CODE IDENT NO. 26512
LDW280-18238
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR = 1/8/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18238-11	E		BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	040 x 3 x 15	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18238

SCALE NONE

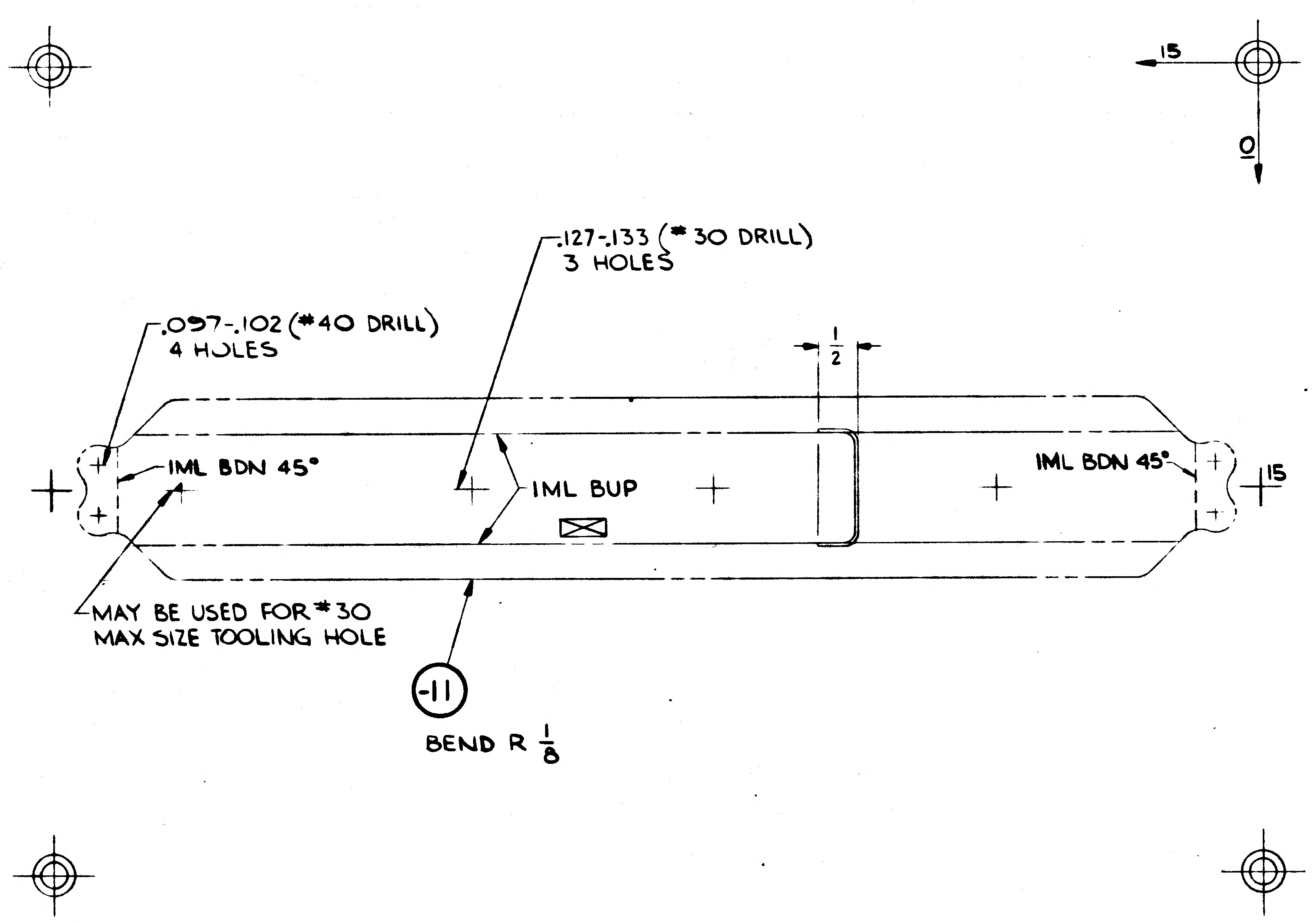
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PART EXCEPT AS NOTED.



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18238
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18238

01

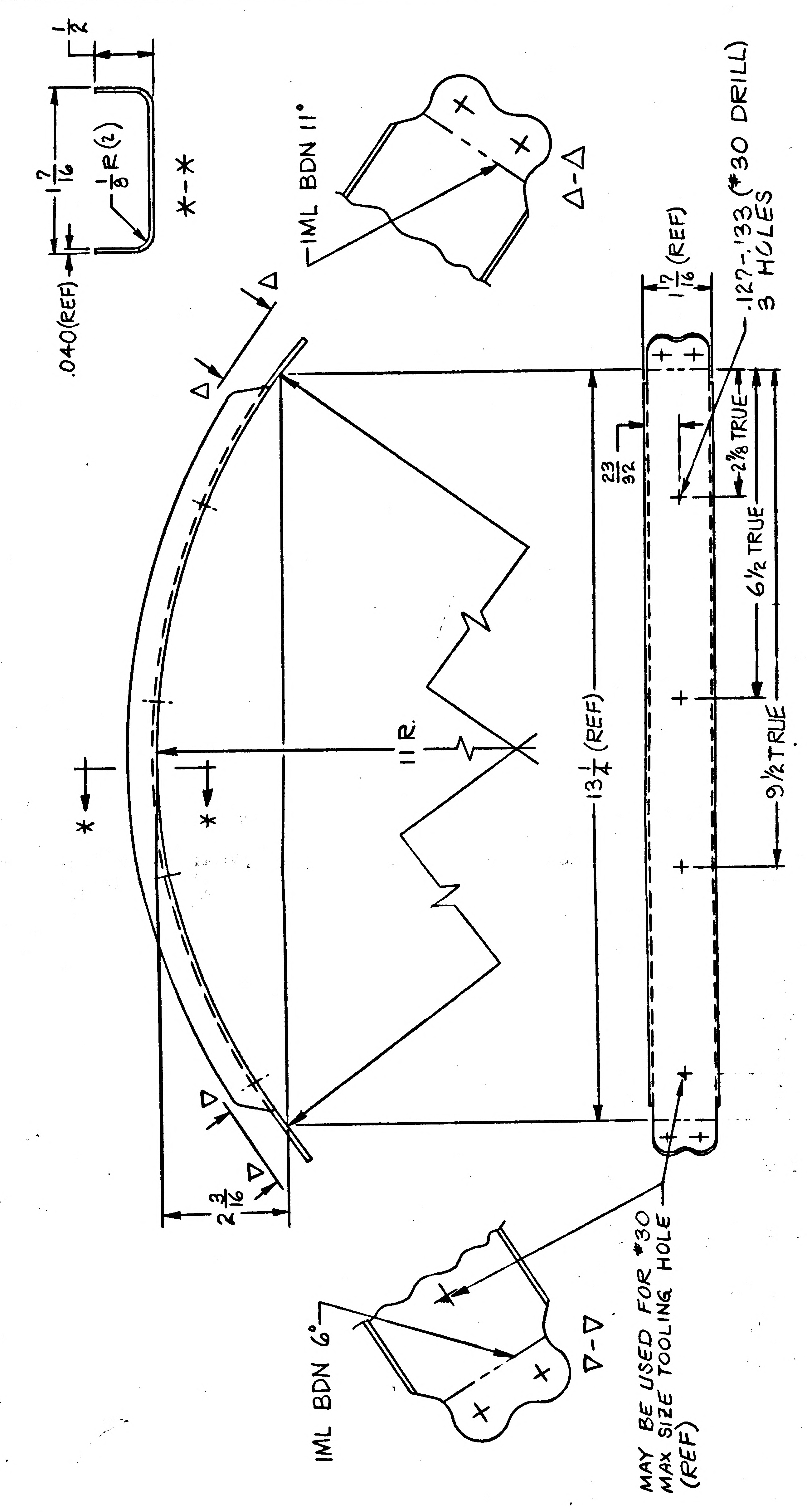
NAS 9-1100

A·G.
ENG 32.2 REV 3-65

A *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18238	EO NO.	A1
CONTROL INFO NO.	LM-2-3427		



.040(REF)
$1\frac{7}{16}$
$\frac{1}{8}$R(2)
$\frac{1}{8}$
-
IML BDN 11°
Δ-Δ
Δ
$2\frac{3}{16}$
*
11 R
$13\frac{1}{4}$(REF)
$\frac{23}{32}$
$1\frac{1}{16}$(REF)
.127-.133 (#30 DRILL) 3 HOLES
$2\frac{3}{8}$ TRUE
$6\frac{1}{2}$ TRUE
$9\frac{1}{2}$ TRUE
IML BDN 6°
∇-∇
MAY BE USED FOR #30 MAX SIZE TOOLING HOLE (REF)

-13

IN FLD/DWG, B/M & MOD/BLK, ADD -13 FOR LM-4(34) THRU LM-15(45) EFFECTIVITY
(-13 REPLACES -11, AND IS IDENTICAL TO -11 EXCEPT AS SHOWN)
MATL: AL ALLOY SH; QQ-A-250/4; 2024-O; PROCESS: HEAT TREAT 'T3/T42'
IN FLD/DWG, B/M & MOD/BLK, DELETE -11 FOR LM-4(34) THRU LM-15(45) EFF

TO BE LOFTED

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
ELIMINATE INTERFERENCE WITH WATER TANK INSTL	IN FLD/DWG, B/M & MOD/BLK, -13 WAS -11.	JS 3-28-7 82025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
✓			✓	-1-					MS 3/2	CF 3/21/67	RMC (EJ) 3-27-67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET~D/S~BEAM PANEL ELECT LINES SUPPORT~QUAD II	LDW280-18238	A1

ISSUED BY LIAISON J. MALONEY 3/20/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1381
CONTROL INFO NO. LDW280B7425

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18223 ✓	B3	SEE DWG
-18224 ✓	B1	↑
-18225 ✓	A1	
-18236 ✓	C1	
-18238 ✓	A2	
-18265	A3	
-18266	A4	
-18267	A3	
-18268	A3	↓
LDW280-18271	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF. FROM -*

GAEC EO RELEASE: 4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY / DATE: VDI 4/1/69; SUPPORT; RELIAB. GROUP; GROUP LEADER 4-2-69; STRESS GROUP 4/1/69; LIAISON ENGRG; PROJ ENGRG 4/9/69; GOVT 4/22/69

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 1381

052869 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1524
CONTROL INFO NO. LDW 280B 8108

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW280-18466	SEE DWG	A6
224		B2
225		A2
236		C2
238		A3
265		A4
266		A5
267		A4
268		A4
LDW280-18271	SEE DWG	A6

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3890 PKG 99 PG 29

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE: 8-6-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD EO ☐
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	PBT				N			Bauman
DATE	7-29-69			7-31-69	8/2/69		8/6/69	8-9-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1524

8-22-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1766
CONTROL INFO NO. LDW280B9700

IN MOD BLK FOR THE FOLLOWING DWGS & DASH NO'S

REVISE N/A LDW280-60791 WAS LDW280-54791
FOR LM 10(40) THRU 14(44)

REMOVE LTA 11 (23) EFF)

DWG. NO.	DASH NO.	TITLE	CHG. NO.
LDW280-18238	-13	SEE DWG	A4
LDW280-18784	-11	SEE DWG	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 - PK39 (5)

REASON FOR EO: REVISE N/A FOR LMMP

DESCRIPTION OF EO:
IN MOD BLK
REVISED N/A LDW280-60791 WAS LDW280-54791
FOR LM10(40) THRU 14(44)
REMOVED LTA 11 (23) EFF

GAEC EO RELEASE: SALB 11-22-69
JK 11/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40) THRU 14 (44)	
LM		LTA 11 (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG, RECORD EO
DISPOSITION OF PARTS: REWORK, ✓ SCRAP

APPROVED BY	08				NM			
DATE	11-21-69			11/21/69	11/21/69		11/22/69	11-24-69
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO-280	1766

CDR 112669
ISSUED BY Don Ragas x86046 SECTION VD1 GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18239

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54779	LM-15(45)	1 EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(33)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
LM	LDW280-54779	LM-4(34)	1 EA
PART NO. LDW280-18239-13 & -14		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54668	LM-15(45)	1 EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
LM	LDW280-54668	LM-4(34)	1 EA
PART NO. LDW280-18239-11 & -12		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
		PRIM NO.	LE(001)	
LAST DASH NO. USED	-14	207	MP-14	2-2-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	E.SICK 1-11-67	RELIABILITY	
LAYOUT BY	B.CLARK		
CHECKED BY	C.GLASER 1-12-67		
GRLEADER	J. Straccan 1/27/67		
VEHDESINT	J. Pusatere 1/27		
STRUCTURE	M.B. 1/27/67	PROJ ENGR	R.M. Carbee 1-27-67
STRUCTURE		REL GROUP	1-30-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

HINGE
DESCENT STAGE-QUAD IV-EXTERNAL
POWER PLUG ACCESS DOOR

SIZE	CODE IDENT NO.	
B	26512	LDW280-18239
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR = 1/27/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18239-14	E		ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.028 × 2 × 2	NONE	NONE	
	LDW280-18239-13	E		ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.028 × 2 × 2	NONE	NONE	
	LDW280-18239-12	E		HINGE	AL ALLOY SH	QQ-A-250/4	2024-T3	.028 × 2 × 2	NONE	NONE	
	LDW280-18239-11	E		HINGE	AL ALLOY SH	QQ-A-250/4	2024-T3	.028 × 2 × 2	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18239

SCALE NONE

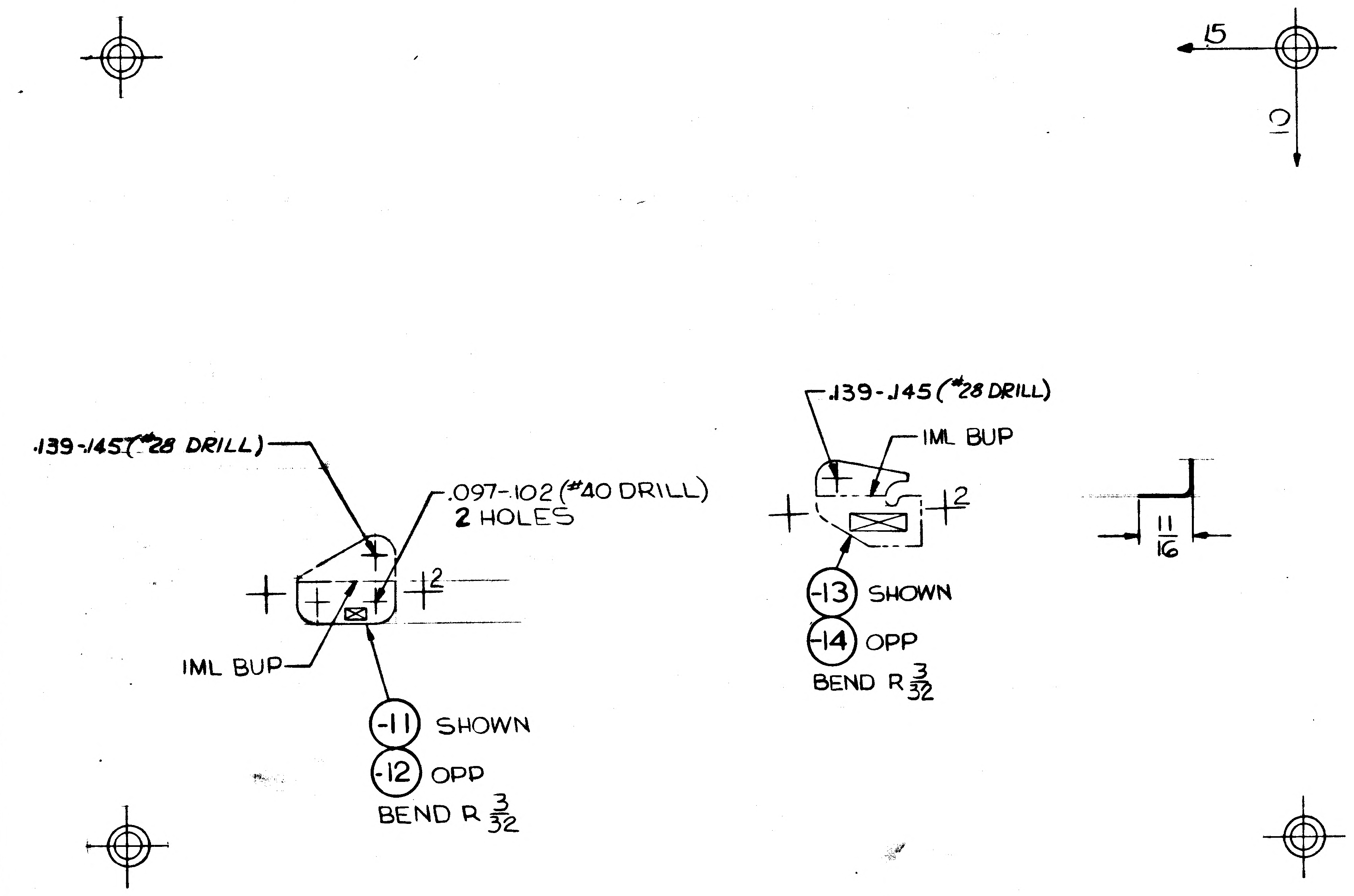
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE C	CODE IDENT NO. 26512	LDW280-18239
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

CDR 1-27-67 K2

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

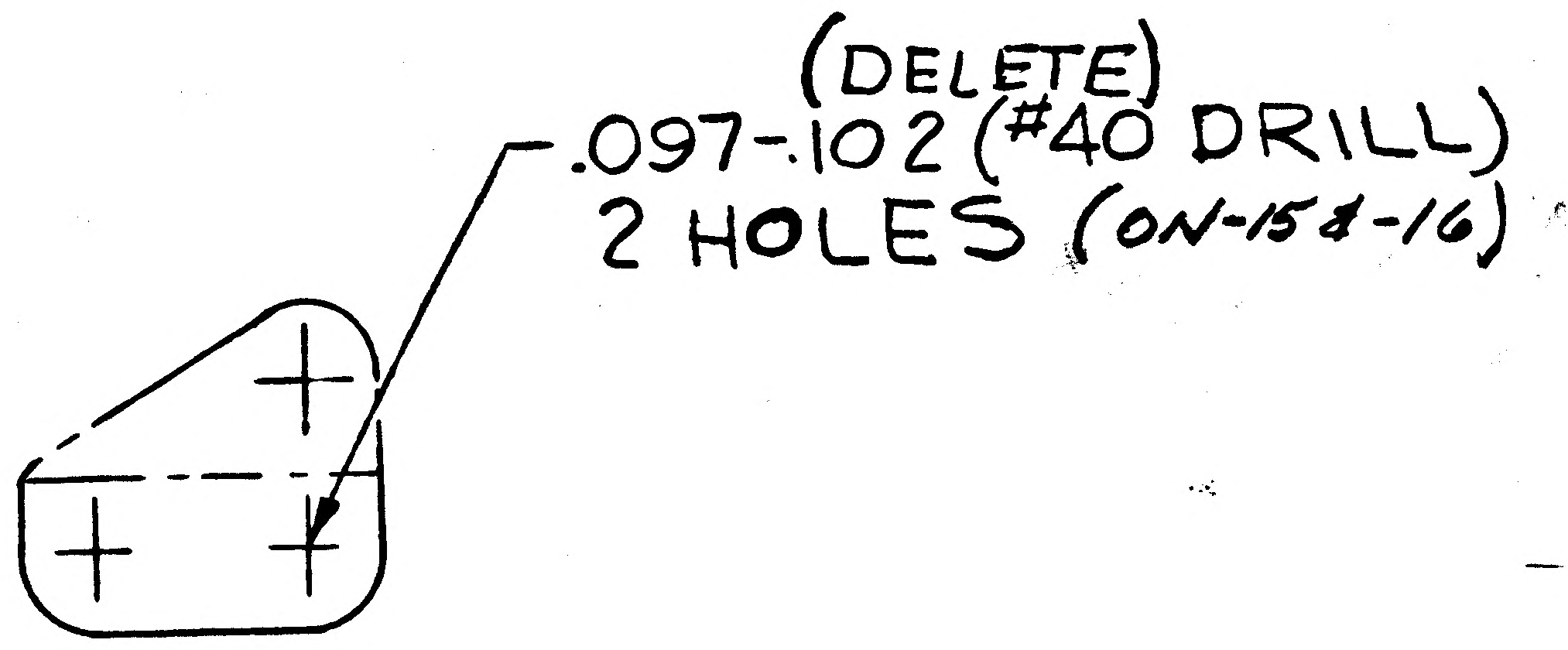
ENGINEERING ORDER

DWG. NO. LDW280-18239 | EO NO. A1

CONTROL INFO NO. LDW280A6050

ADD -15 & -16 IDENT TO -11 & -12 EXCEPT AS SHOWN BELOW
-15 & -16 EFF LM-4 THRU LM-15 N/A LDW280-28561 1EA. REQ/MOD

REMOVE -11 & -12



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 661 2

REASON FOR EO: TO PROVIDE PROPER CLEARANCE FOR ASTRONAUT ACCESS LCR 661

DESCRIPTION OF EO: ADDED -15 & -16
REMOVED -11 & -12

GAEC EO RELEASE: R C JK 3/29/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
		THRU	
		LM-15 45	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-11 -12

APPROVED BY	6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE		3/21/67			3/21/67	3/23/67		3.23.67	3/24/67

PRIORITY: C

DRAWING TITLE: HINGE D/S - QUAD IV EXTERNAL POWER PLUG ACCESS DOOR

DRAWING NO. LDW280-18239

EO NO. A1

ISSUED BY R CLARK/J STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280 | EO NO. 793
CONTROL INFO NO. LDW280B0053

FOR THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS* THAT ARE EFF ON LM-4(34), REMOVE LM-4(34) THRU LM-15(45) REQMTS.

	DRAWING NO. *	NEXT ASSY	TITLE	CHG NO.
✓	LDW280-28561	LDW280-54553	SEE DWG	C5
✓	-28773	-28561		A9
✓	-28774	-28773		B1
✓	-28775	-28773		B8
✓	-28820	-28561		B2
✓	-28819	-28820		A3
✓	-18129	-28820		A4
✓	-28776	-28561		A2
✓	P17465	-28776		B3
✓	P17514	-28776		B1
✓	P17516	-28776		B4
✓	P17535	-28776		B3
✓	-28669	-54553		B1
✓	-18239	-28561		A2
	-54777			A2
	P17496			A8
	M17698			B7
	P17479			A9
	P17946			B3
	P17967			B10
	P18091			A3
	-28757	-28561		B1
	LDW280	LDW280	SEE DWG	

01

NAS 9-1100

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 2011 CCA668 | (5)

REASON FOR EO: REDESIGN OF THERMAL SHIELDING FOR EQUIP STOWAGE.

DESCRIPTION OF EO: FOR *, REMOVED LM-4 THRU LM-15 REQMTS.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓
APPROVED BY							
DATE	11/7/67			11-6-67	11/7/67		11/7/67	11-7-67
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

(R) GAEC C EO RELEASE: JK 11/8/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 793

11-10
ISSUED BY S. TAMRES / P. THORJUSEN x7033 SECTION VDI GROUP NO. 335 PL 25

LDW280-18242

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52648	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
LM	LDW280-52648	LM-4(34)	2
PART NO. LDW280-18242-17		GAEC SCH NO. 52-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52837	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-52837	LM-4(34)	1
PART NO. LDW280-18242-15		GAEC SCH NO. 52-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23578	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-23578	LM-4(34)	1 EA
PART NO. LDW280-18242-11 & -13		GAEC SCH NO. 51-2	

WORK PKG FUNCTION NO. 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	
LAST DASH NO. USED	-17

GRUMMAN REL C INFO

PRIM NO.	JK(001)		
207	MP-14 3/8/67		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	CALDARELLA 1-28-67	RELIABILITY	
LAYOUT BY	MARZELLA 3-2-67	MATL'S	
CHECKED BY	EG 2-2-67		
GR LEADER	3/3/67		
V.D.I.	J. Fusateri 3/4/67		
STRUCTURES	3/6/67	PROJ ENGR	RM Casbee (UR) 3-6-67
STRUCTURES	3/6	REL GROUP	Botti 3-8-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEF

DESCENT STAGE-SCIENTIFIC EQUIPMENT
& BLKHD-MECHANISM SUP'T.

SIZE	CODE IDENT NO.	
B	26512	LDW280-18242
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

CDR = 3/3/67

01 NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18242-17	E		SPACER	AL ALLOY SH	QQ-A-250/12	7075-T6	.045 × 2 × 2	NONE	88 & NOTE 2	
	LDW280-18242-15	E		PLATE	AL ALLOY SH	QQ-A-250/12	7075-T3	.063 × 2 × 3	NONE	88	
	LDW280-18242-13	E		ZEE	AL ALLOY SH	QQ-A-250/12	7075	.032 × 3 × 8	T6	88	
	LDW280-18242-11	E		ZEE	AL ALLOY SH	QQ-A-250/12	7075	.032 × 3 × 8	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18242

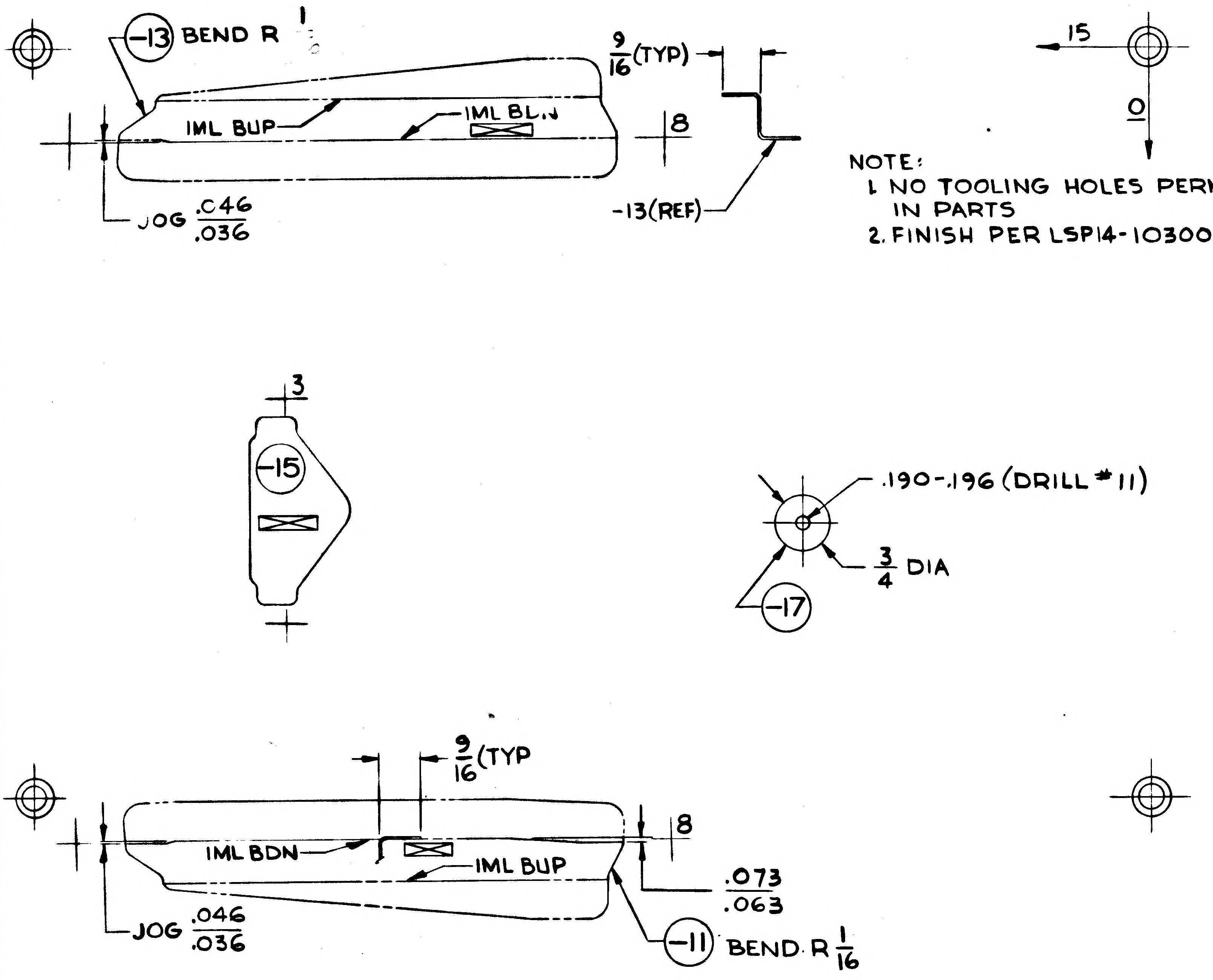
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100



NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. FINISH PER LSP14-10300 TYPE I

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18242

LDW280-18242

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18242
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION K2

01 NAS 9-1100

A
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-18242
EO NO. A1
CONTROL INFO NO. LM-2-3440

IN B/M FOR -15, REVISE COMMERCIAL SPEC CALLOUT
7075-T3 SHOULD BE 7075-T6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
(DRAWING CORRECTION ONLY) 7075 ALUM ALLOY IS NOT MANUFACTURED IN T3 CONDITION	FOR -15, IN B/M, "7075-T6" WAS "7075-T3"	JS 3-28-7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

					STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					MSL	CCF	RMC	
DATE					3/21/67	3/21/67	3-27-67	3/21/67
-6-		SUPPORT	RELIAB. GROUP	GROUP LEADER				

PRIORITY E
DRAWING TITLE ZEE~DESCENT STAGE~SCIENTIFIC & BLKHD~MECHANISM SUPPORT
DRAWING NO. LDW280-18242
EO NO. A1

ISSUED BY LIAISON J. MALONEY 3/21/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18243

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54548	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
LM	LDW280-54548	LM-4(34)	2
PART NO. LDW280-18243-15		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54543	LM-15(45)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
		LM-6(36)	1EA
		LM-5(35)	1EA
LM	LDW280-54548	LM-4(34)	1EA
PART NO. LDW280-18243-11-13, -17 & -19		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00				
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO
PRIM NO. 207 SK-(00) MP-14-3/8/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	CALDARELLA 1-28-67	RELIABILITY	
LAYOUT BY	MARZELLA 2-24-67		
CHECKED BY	EG 2-2-67		
GR LEADER	3/1/67		
V.D.I.	J. Pusateri 3/6/67		
STRUCTURES	3/6/67	PROJ ENGR	R.M. Carbee 3-6-67
STRUCTURES	3/6	REL GROUP	Botti 3-8-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-QUAD II-SCIENTIFIC EQUIP.
ACCESS DOOR MECHANISM ATTACH

SIZE B
CODE IDENT NO. 26512
LDW280-18243
SCALE NONE
SHEET 1.00 OF 3

CDR 3-3-67

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18243-19	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.050×3×4	T6	88	
	LDW280-18243-17	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075-T6	.050×2×3	NONE	88	
	-15	E		PLATE			7075-T6	.040×2×4	NONE	88	
	-13	E		CHANNEL			7075	.032×4×9	T6	88	
	LDW280-18243-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032×4×10	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6080
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18243
SCALE NONE		SHEET 2.00

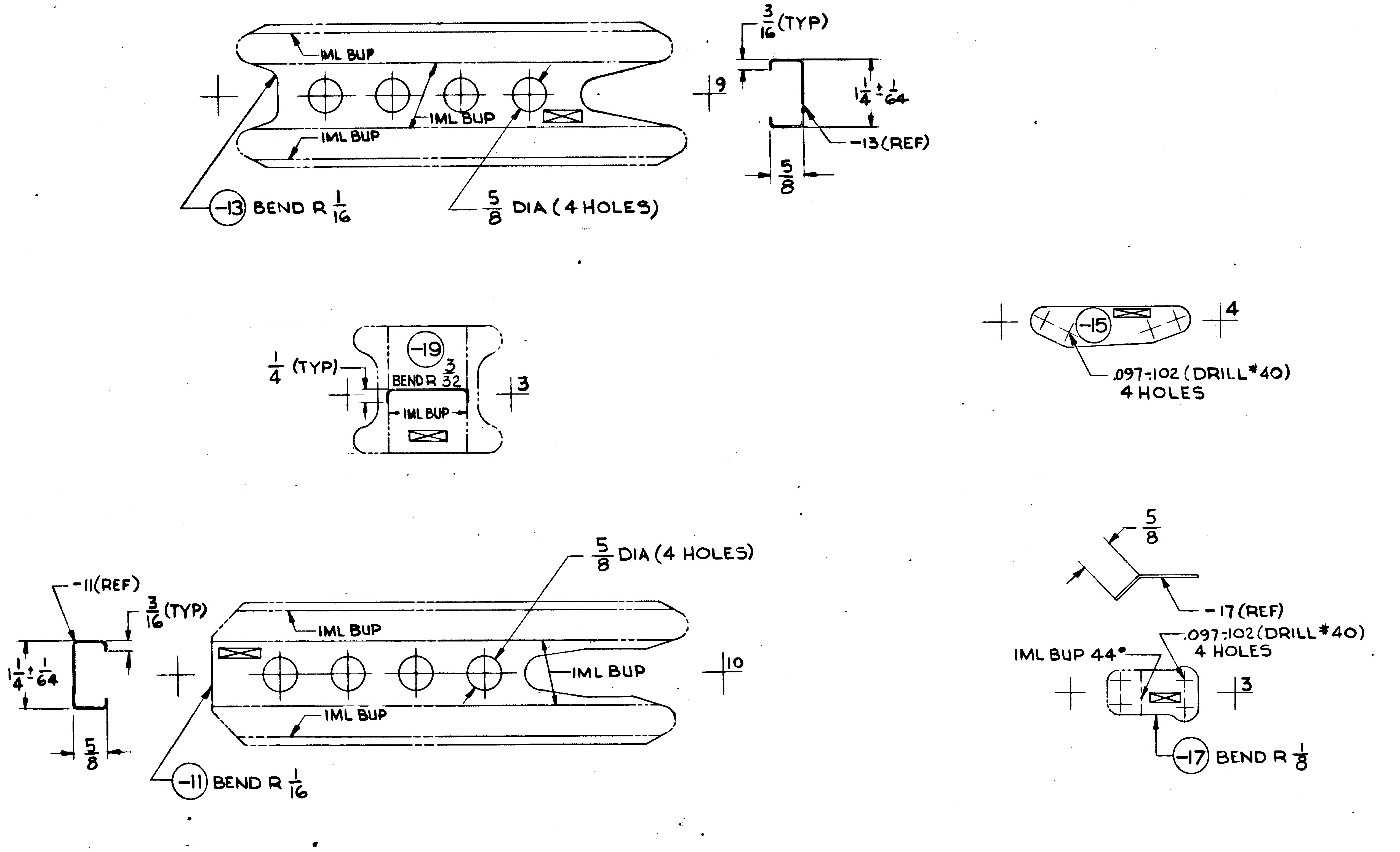
ENG 77.2 5-64

01

NAS 9-1100

LDW280-18243

NOTE:
1. NO TOOL HOLES PERMITTED IN PARTS


IML BUP
IML BUP
IML BUP
3/16 (TYP)
9
1 1/4 ± 1/64
-13 (REF)
5/8
-13 BEND R 1/16
5/8 DIA (4 HOLES)
1/4 (TYP)
-19
BEND R 3/32
IML BUP
3
-15
4
.097-.102 (DRILL #40)
4 HOLES
5/8
-17 (REF)
-11 (REF)
3/16 (TYP)
1 1/4 ± 1/64
5/8
5/8 DIA (4 HOLES)
IML BUP
IML BUP
IML BUP
10
-11 BEND R 1/16
IML BUP 44°
.097-.102 (DRILL #40)
4 HOLES
3
-17 BEND R 1/8
25
20

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18243

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE D	CODE IDENT NO. 26512	LDW280-18243
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

01

NAS 9-1100

LDW280-18244

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54552	LM-15 (45)	2
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
		LM-10 (40)	2
		LM-9 (39)	2
		LM-8 (38)	2
		LM-7 (37)	2
		LM-6 (36)	2
		LM-5 (35)	2
LM	LDW280-54552	LM-4 (34)	2
PART NO. LDW280-18244-15		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW28C-54552	LM 15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
LM	LDW280-54552	LM-4 (34)	1
PART NO. LDW280-18244-13		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54552	LM15 (45)	1
		LM14-(44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM 10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
LM	LDW280-54552	LM-4 (34)	1
PART NO. LDW280-18244-11		GAEC SCH NO. 52	

WORK PACKAGE FUNCTION NO. 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REC INFO	
		PRIM NO.	JK (001)
LAST DASH NO. USED	-15	207	MP-14-2/24/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	MONTEMAGNO 2-13-67	RELIABILITY	
LAYOUT BY	ZUVER 2-20-67		
CHECKED BY	EG 2-8-67		
GR LEADER	J. Stiglam 2/20/67		
VEH DES INT	J. Tusaten 2/20/67		
STRUCTURES	WJH 2/21/67	PROJ ENGR	3-3-67
STRUCTURES	2/24	REL GROUP	2/24/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ARM
DESCENT STAGE - QUAD II SCIENTIFIC
EQUIPMENT ACCESS DOOR

SIZE B
CODE IDENT NO. 26512
LDW280-18244
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR = 3/3/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18244-15	E		PLATE	AL ALLOY SH	QQ-A-250/4	2024-T3	.063X2X2	NONE	88	
	LDW280-18244-13	↕		LINK	↕	↕	↕	.020X2X11	↕	↕	
	LDW280-18244-11	E		ARM	AL ALLOY SH	QQ-A-250/4	2024-T3	.032X4X14	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

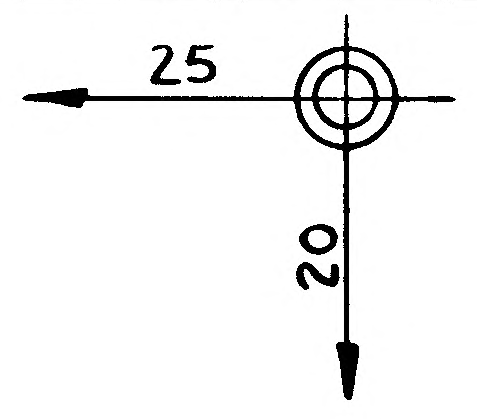
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18244
SCALE NONE		SHEET 2.00

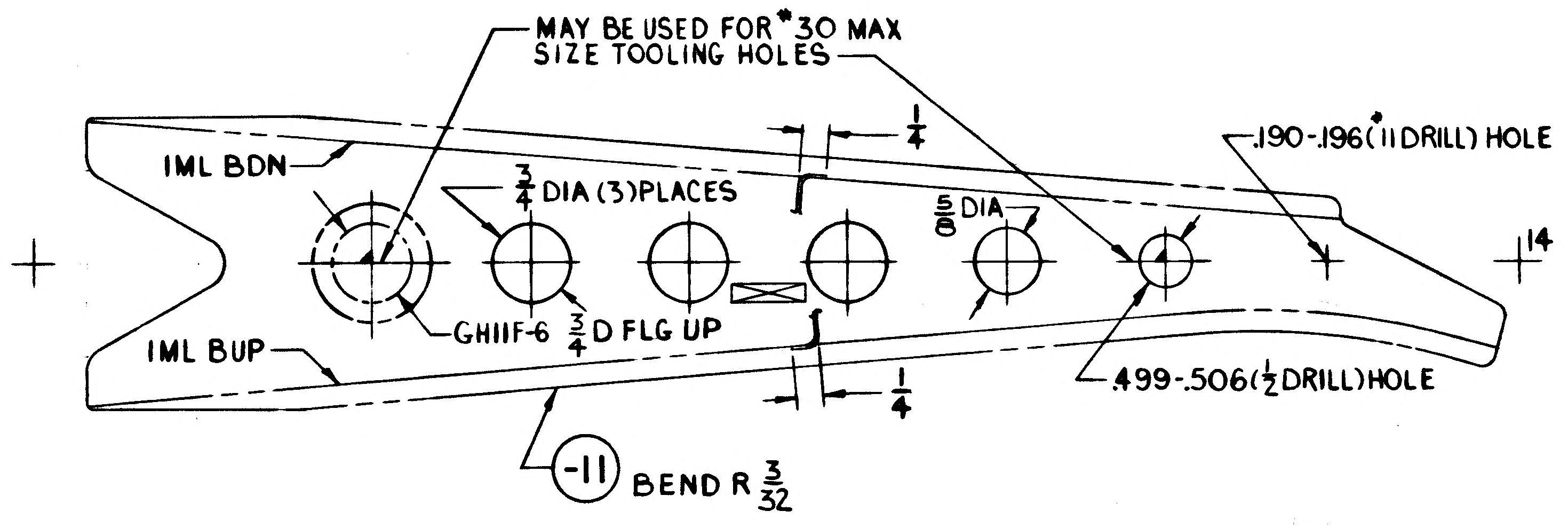
ENG 77.2 5-64

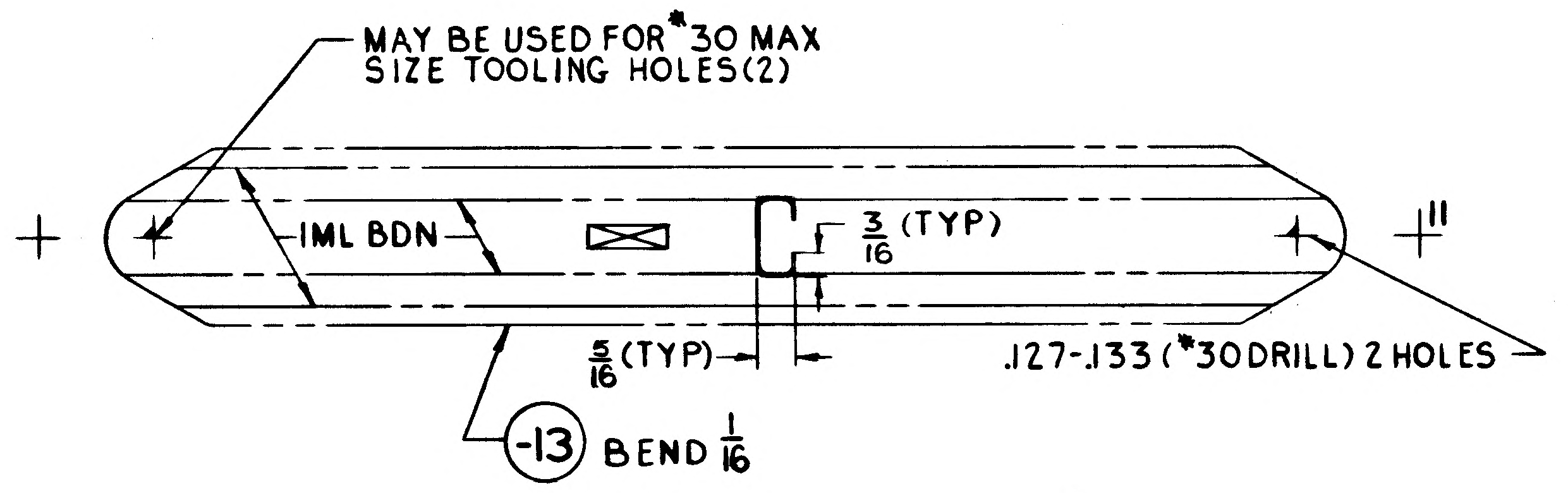
01

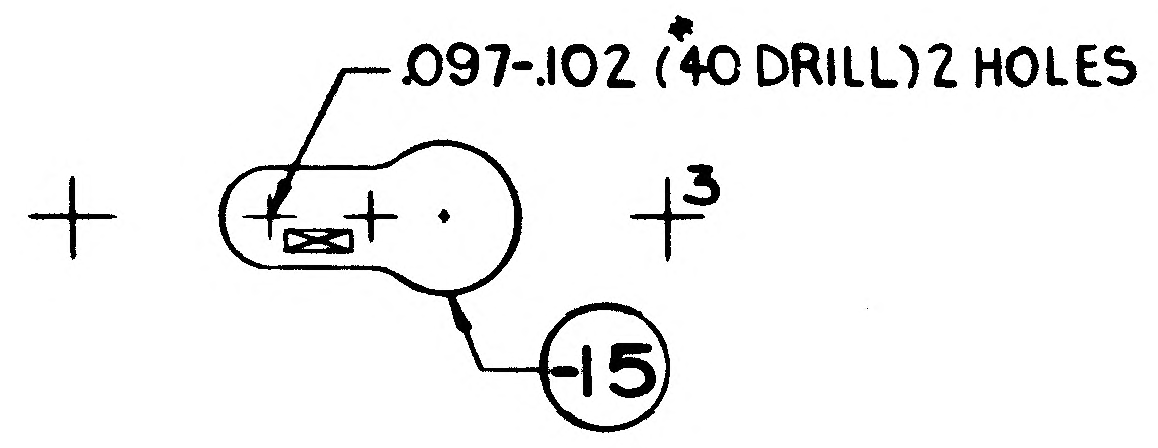
NAS 9-1100



NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS EXCEPT AS NOTED.


MAY BE USED FOR *30 MAX SIZE TOOLING HOLES
IML BDN
3/4 DIA (3) PLACES
1/4
5/8 DIA
.190-.196 (*11 DRILL) HOLE
14
GH11F-6 3/4 D FLG UP
IML BUP
1/4
.499-.506 (1/2 DRILL) HOLE
-11
BEND R 3/32


MAY BE USED FOR *30 MAX SIZE TOOLING HOLES (2)
IML BDN
3/16 (TYP)
11
5/16 (TYP)
.127-.133 (*30 DRILL) 2 HOLES
-13
BEND 1/16


.097-.102 (*40 DRILL) 2 HOLES
3
-15

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
LM
MODEL OR END ITEM
SIZE D
CODE IDENT NO. 26512
LDW280-18244
SCALE FULL
SHEET 3.00

CRD 3-3-67 FOR PHOTO REPRODUCTION

K2

LDW280-18244

01 NAS 9-1100

LDW280-18246

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53601	LM-3(33)	2
PART NO.		GAEC SCH NO.	
LDW280-18246-15		52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53601	LM-3(33)	1 EA
PART NO.		GAEC SCH NO.	
LDW280-18246-11,-13		52	

WORK PKG FUNCTION NO. 110

CCA-359 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED ~

LAST DASH NO. USED -15

GRUMMAN REF INFO

PRIM NO. 207 VE(001) MP-14 1-27-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY J.GARRAFFO 1-20-67
LAYOUT BY HANSMANN G.W.H.
CHECKED BY WCG 1/23/67
GR LEADER 1/18/67
VEH DES INT 1/27
STRUCTURES NM WM 1/25/67
STRUCTURES 1/26
WEIGHTS
RELIABILITY
THERMO AB 1/25/67
PROJ ENGR 1/26/67
REL GROUP 1/28/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE ~ QUAD II ~ RADIO
ISOTOPE THERMAL GENERATOR ~ THERMAL SHIELD

SIZE B
CODE IDENT NO. 26512
LDW280-18246
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 1/27/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18246-15	E		WEB	AL ALY SH	QQ-A-250/12	7075-T6	.024 X 6 X 31	NONE	88	
	LDW280-18246-13	E		WEB	AL ALY SH	QQ-A-250/12	7075-T6	.024 X 15 X 16	NONE	88	
	LDW280-18246-11	E		WEB	AL ALY SH	QQ-A-250/12	7075-T6	.024 X 13 X 16	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18246

SCALE NONE

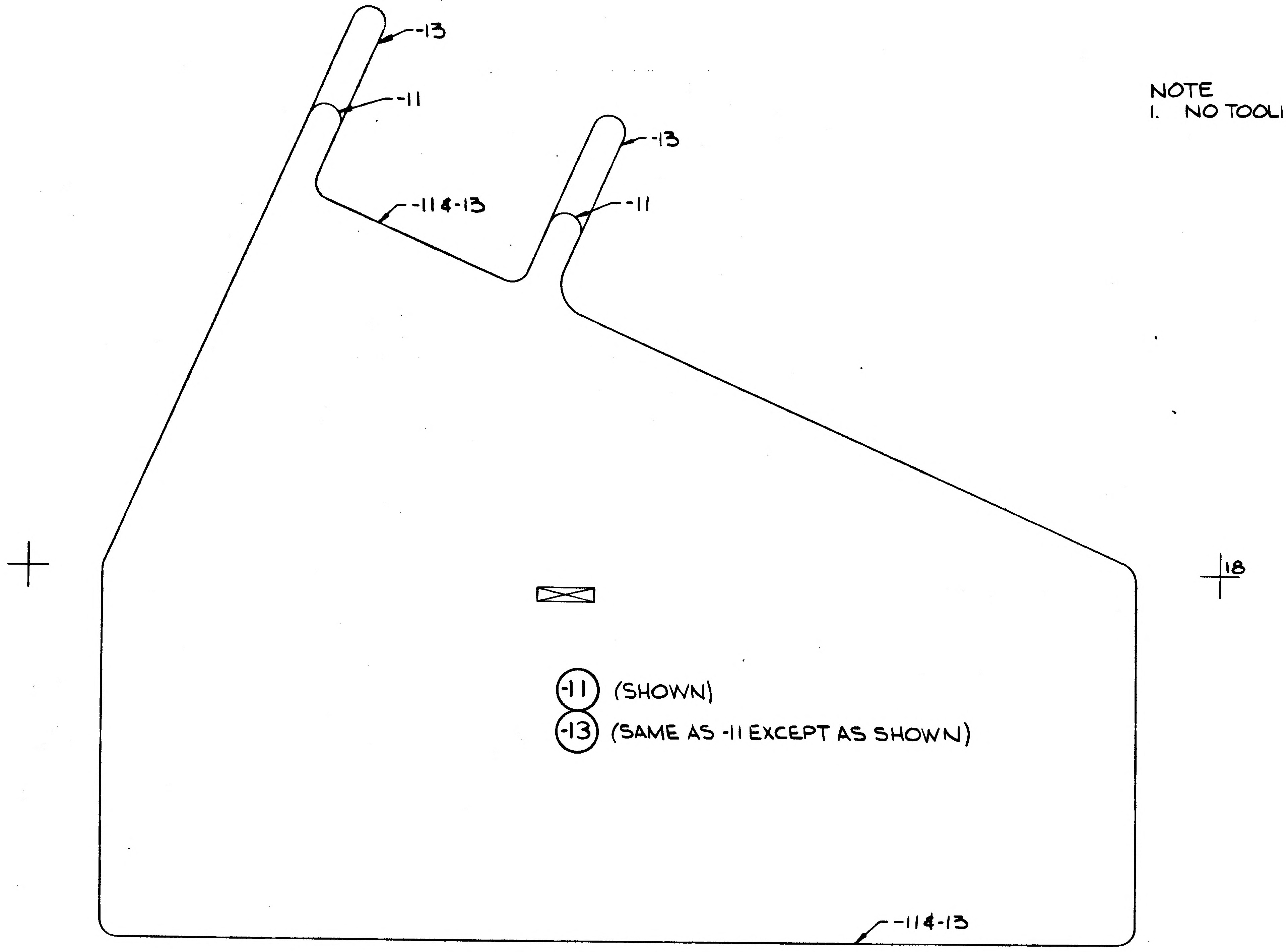
SHEET 2.00

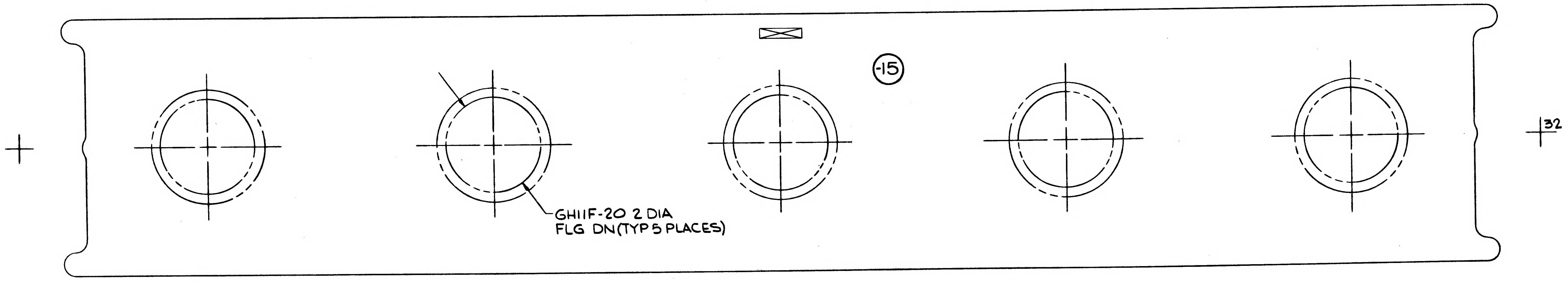
ENG 77.2 5-64

01

NAS 9-1100

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.





MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01 NAS 9-1100

LDW280-18246

LDW280-18246

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE E	CODE IDENT NO. 26512	LDW280-18246
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

LDW280-18247

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
		GAEC SCH NO.	
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53601	LM-3(33)	2 EA
PART NO. LDW280-18247-15,-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53601	LM-3(33)	1 EA
PART NO. LDW280-18247-11,-13,-19		GAEC SCH NO. 52	

WORK PKG FUNCTION NO. 110

CCA-359 2

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO
PRIM NO. 207
CE(001) MP-14 1-28-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM

DRAWN BY	J.GARRAFFO 1/17/67	RELIABILITY	
LAYOUT BY	HANSMANN	THERMO	1/27/67
CHECKED BY	WCG 1/27/67		
GRP LDR	1/27/67		
VEH DES INT	1/27/67		
STRUCTURES	NM 1/27/67	PROJ ENGR	1/28/67
STRUCTURES	1/27	REL GROUP	1-28-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE ~ QUAD II - RADIO ISOTOPE THERMAL GENERATOR ~ THERMAL SHIELD

SIZE B
CODE IDENT NO. 26512
LDW280-18247
SCALE NONE
SHEET 1.00 OF 3

CDR = 1/27/67

ENG 77 1 12-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18247-19	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032x 3x 4	T6	88	
	-17							.040x 3 x 8			
	-15							.040x 3 x 6			
	-13							.040x 3 x 3			
	LDW280-18247-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.040x 3x15	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

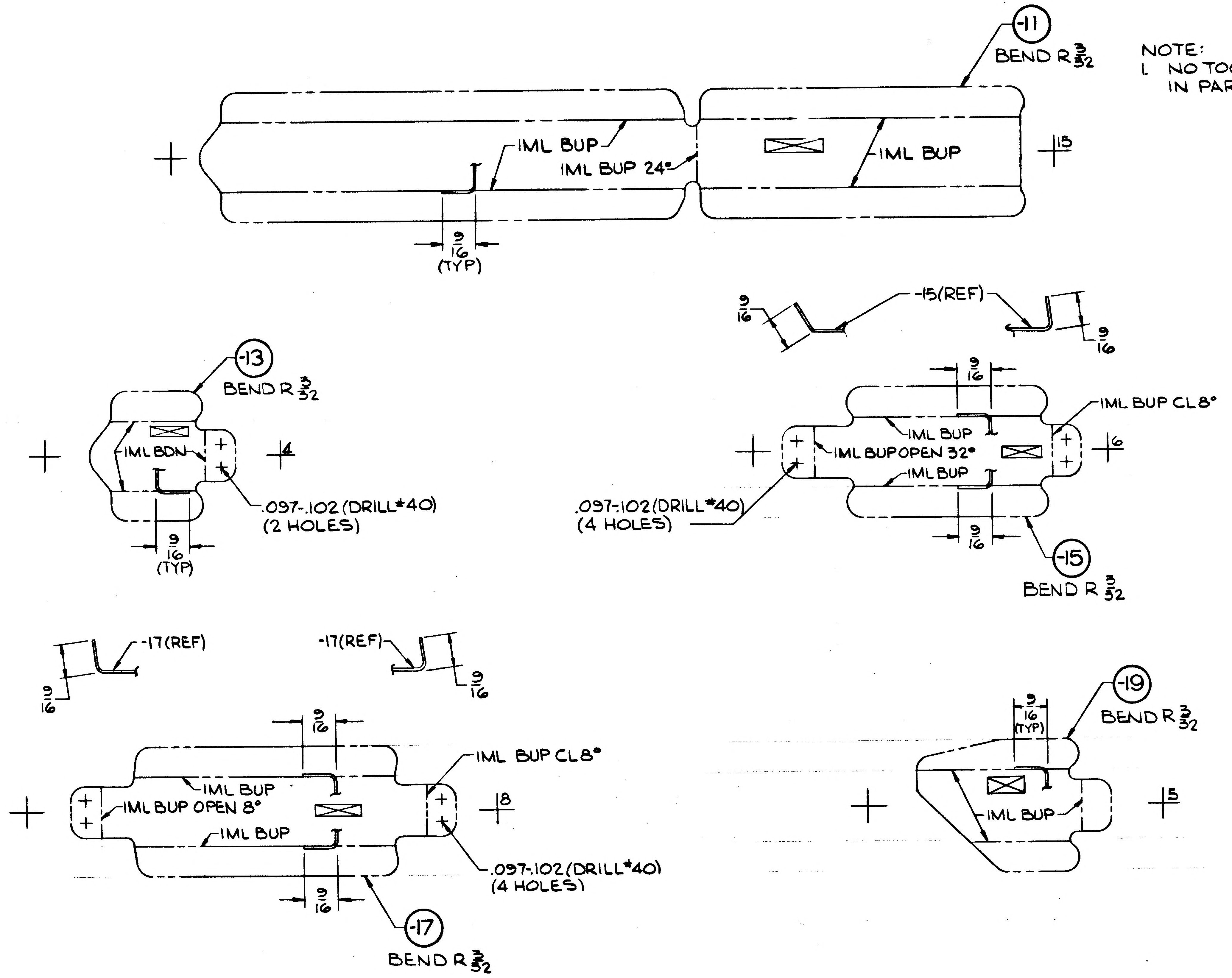
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18247
SCALE NONE
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100


-11
BEND R 3/32
IML BUP
IML BUP 24°
IML BUP
15
9/16 (TYP)
-15(REF)
9/16
9/16
-13
BEND R 3/32
IML BDN
4
.097-.102 (DRILL #40) (2 HOLES)
9/16 (TYP)
9/16
IML BUP CL8°
IML BUP
IML BUP OPEN 32°
IML BUP
16
.097-.102 (DRILL #40) (4 HOLES)
9/16
-15
BEND R 3/32
-17(REF)
9/16
-17(REF)
9/16
9/16
IML BUP CL8°
IML BUP
IML BUP OPEN 8°
IML BUP
18
.097-.102 (DRILL #40) (4 HOLES)
9/16
-17
BEND R 3/32
9/16 (TYP)
-19
BEND R 3/32
IML BUP
5
25
20

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM: LM	SIZE: D	CODE IDENT NO.: 26512	LDW280-18247
SCALE FULL			SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

K2

LDW280-18247

01

NAS 9-1100

B *

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18247
EO NO. A1
CONTROL INFO NO. LM-5-13066

ON -17,
BUP CL 8° (IS) (WAS) BUP OPEN 8°
BUP OPEN 8° (IS) (WAS) BUP CL 8°

ON -19 BDN (IS)(WAS) BUP

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	5

REASON FOR EO: TO CORRECT DETAIL PARTS TO AGREE WITH NEXT ASSY

DESCRIPTION OF EO: ON -17, BUP CL 8° WAS BUP OPEN 8°, BUP OPEN 8° WAS BUP CL 8°
ON -19 BDN WAS BUP

GAEC EO RELEASE: C
JS 3-30-7
–

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM3 (33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY	WT			~	JFJ	CH		
				DATE	3/28/67			~	3-28	3-28	3-30-67	3-28-67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VD1	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY: C
DRAWING TITLE: QUAD II - RADIO CHANNEL - DIS- ISOTOPE THERMAL GENERATOR - THERMAL SHIELD
DRAWING NO.: LDW 280-18247
EO NO.: A1

ISSUED BY E.J. COMISKEY, 6510, ANTES SECTION VD1 GROUP NO. 335 PL 5

01 NAS 9-1100

LDW280-18248

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53601	LM-3(33)	4
PART NO. LDW280-18248-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53601	LM-3(33)	2
PART NO. LDW280-18248-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53601	LM-3(33	1EA
PART NO. LDW280-18248-11,-13, -19 & -20		GAEC SCH NO. 52	

WORK PKG FUCTION NO. 110 CCA-359

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	—	GRUMMAN REL INFO	
		PRIM NO.	LE(001)
LAST DASH NO. USED	-20	207	MP-M 1-28-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II (2)

DRAWN BY	CALDARELLA 1/21/67	RELIABILITY	
LAYOUT BY	G.HANSMANN	THERMO	AB 1/27/67
CHECKED BY	WCG 1/27/67		
GR LEADER	1/27/67		
V.D.I	J. Lusatin 1/27/67		
STRUCTURES	1/27/67	PROJ ENGR	1/28/67
STRUCTURES	TED 1/27	REL GROUP	1/28/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-QUAD II-RADIO ISOTOPE
THERMAL GENERATOR-THERMAL SHIELD

SIZE B
CODE IDENT NO. 26512
LDW280-18248
SCALE NONE
SHEET 1.00 OF 3

CDR = 1/27/67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18248-20	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.040× 4×8	T6	88	
	-19							.040× 4×8			
	-17							.040× 3×18			
	-15							.032× 3×15			
	-13							.040× 3× 5			
	LDW280-18248-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.040× 3×17	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18248

SCALE NONE

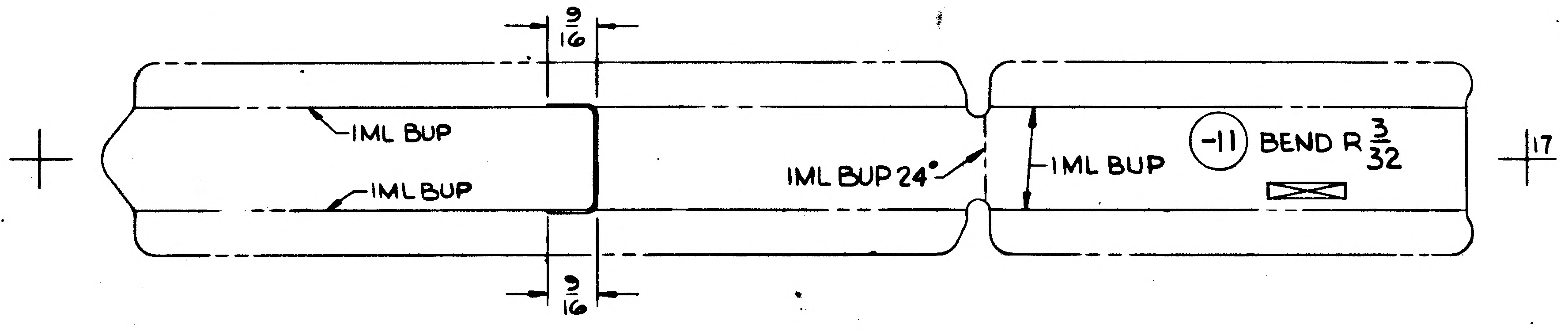
SHEET 2.00

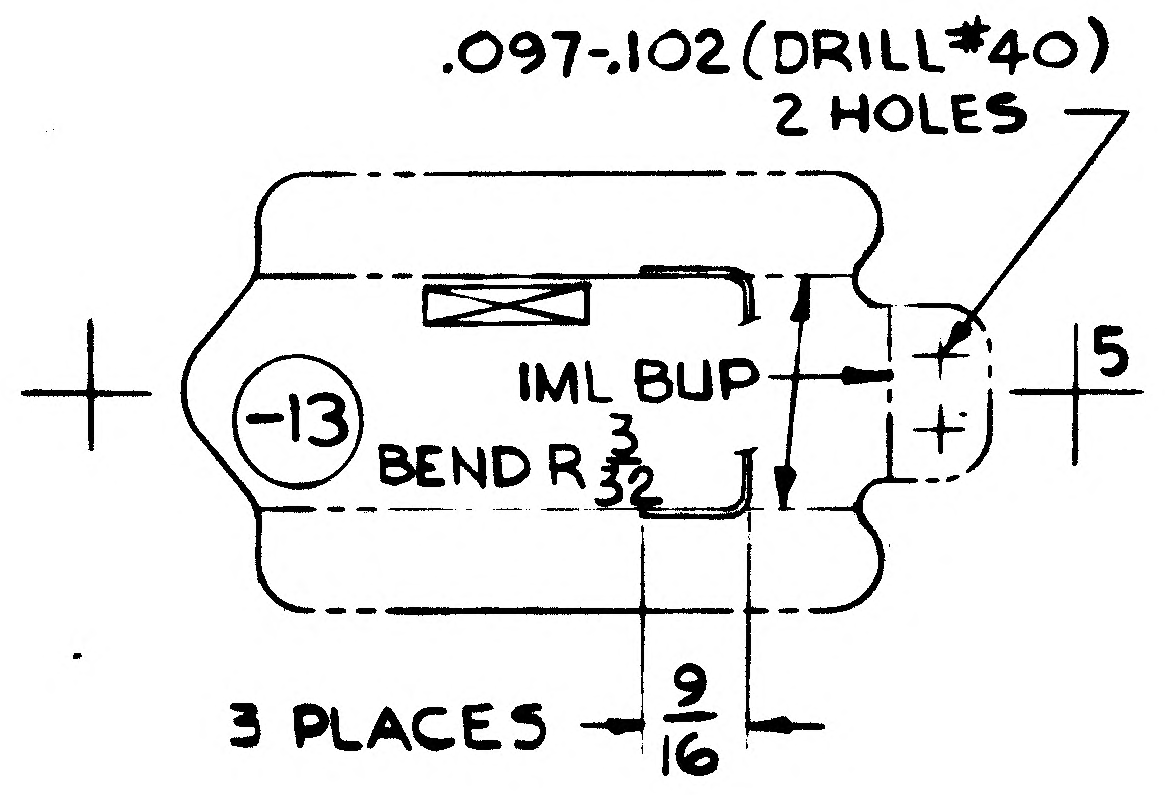
ENG 77.2 5-64

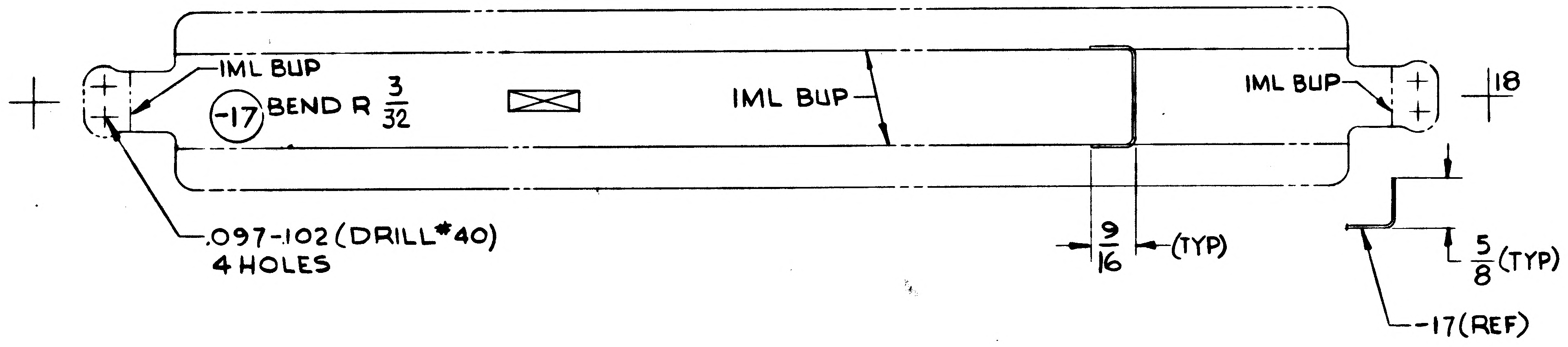
01

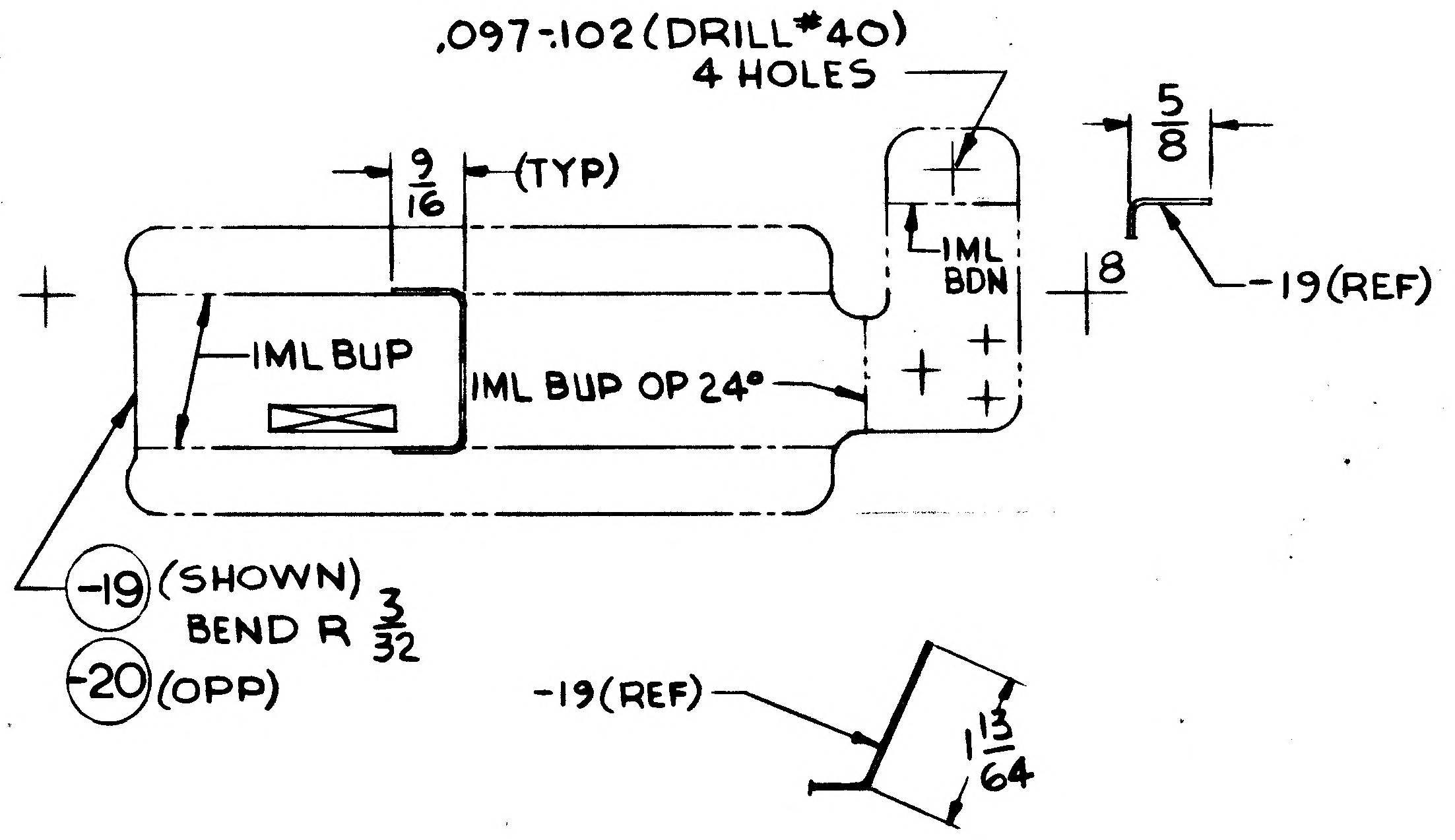
NAS 9-1100

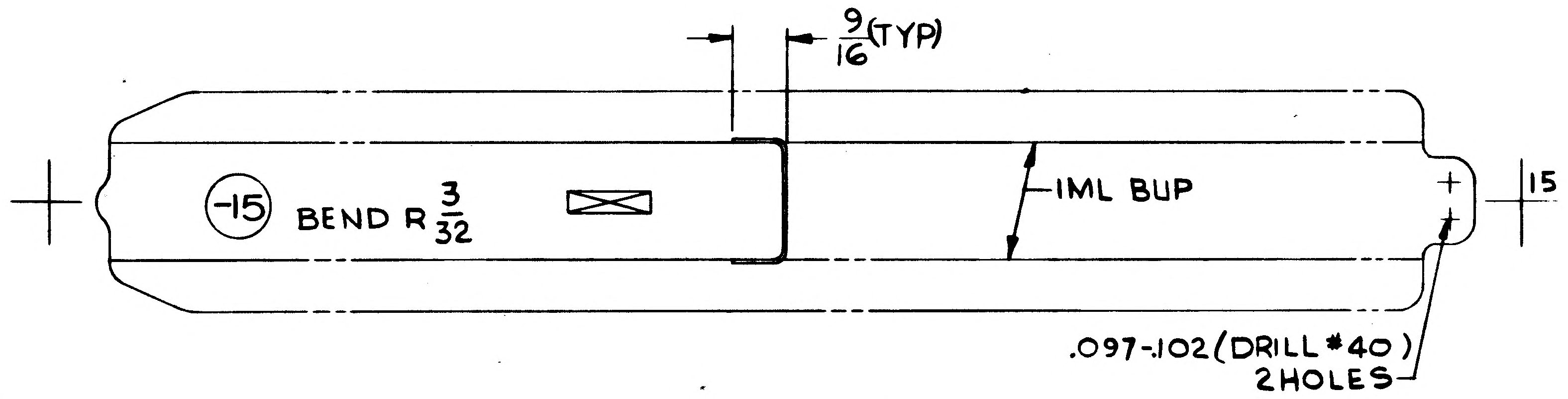
NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS


9/16
IML BUP
IML BUP
IML BUP 24°
IML BUP
-11
BEND R 3/32
17
9/16


.097-.102 (DRILL #40)
2 HOLES
-13
IML BUP
BEND R 3/32
5
3 PLACES
9/16


IML BUP
-17
BEND R 3/32
IML BUP
IML BUP
18
.097-.102 (DRILL #40)
4 HOLES
9/16
(TYP)
5/8 (TYP)
-17 (REF)


.097-.102 (DRILL #40)
4 HOLES
9/16
(TYP)
5/8
IML BDN
8
-19 (REF)
IML BUP
IML BUP OP 24°
-19 (SHOWN)
BEND R 3/32
-20 (OPP)
-19 (REF)
1 13/64


9/16 (TYP)
-15
BEND R 3/32
IML BUP
15
.097-.102 (DRILL #40)
2 HOLES

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER 250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18248

LDW280-18248

	GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18248	
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2

01 NAS 9-1100

LDW280-18249

LM	LDW'280-53601	LM-3(33)	2
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18249-19		GAEC SCH NO. 52	

LM	LDW280-53601	LM-3(33)	4 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18249-15&-17		GAEC SCH NO. 52	

LM	LDW280-53601	LM-3(33)	1 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18249- -11,-12,-13&-14		GAEC SCH NO. 52	

WORK PKG FUNCTION NO 110

CCA-359 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO	
		PRIM NO.	LE(001)
LAST DASH NO. USED	-19	207	MP-14 1/27/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J.GARRAFFO 1/20/67	RELIABILITY	
LAYOUT BY	HANSMANN	THERMO	AB 1/25/67
CHECKED BY	WCG 1/23/67		
GRP LDR	1/2?/67		
VEH DES INT	1/25/67		
STRUCTURES	NM/JH 1/25/67	PROJ ENGR	1/26/67
STRUCTURES	EP 1/24	REL GROUP	1/20/67
WEIGHTS			

© GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT
DESCENT STAGE~QUAD II~RADIO
ISOTOPE THERMAL GENERATOR~THERMAL SHIELD

SIZE	CODE IDENT NO.	
B	26512	LDW280-18249
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 1/27/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW230-18249-19	E		PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.032x 1 x 3	NONE	88	
	-17			PLATE			7075-T6	.040x 2 x 3	NONE		
	-15			PLATE			7075-T6	.040x 2 x 3	NONE		
	-14			SUPPORT			7075	.040x 5 x 6	T6		
	-13			SUPPORT			7075	.040x 5 x 6	T6		
	-12			SUPPORT			7075	.040x 4 x 6	T6		
	LDW280-18249-11	E		SUPPORT	AL ALLOY SH	QQ-A-250/12	7075	.040x 4 x 6	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP 14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

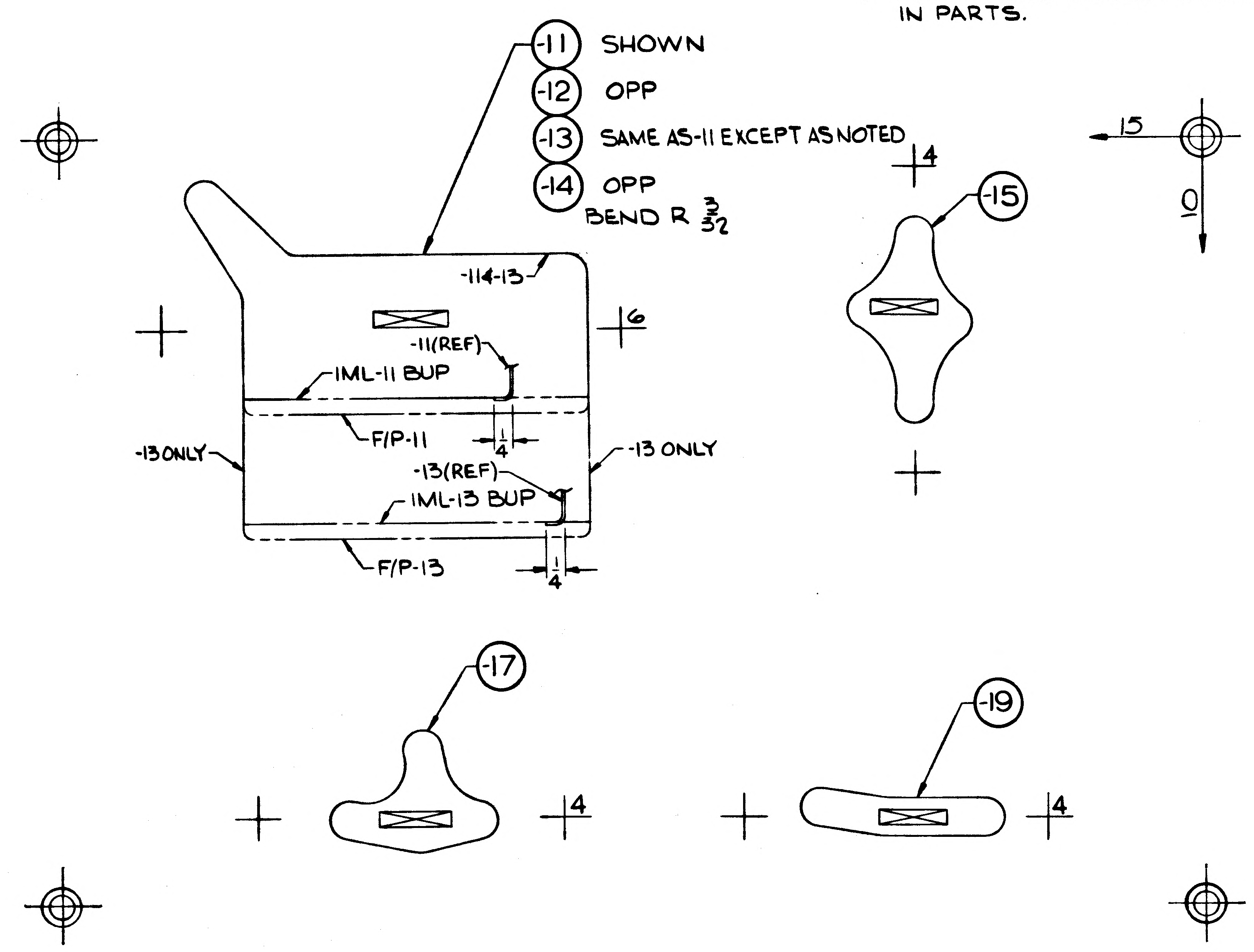
SIZE	CODE IDENT NO.	
B	26512	LDW280-18249
SCALE NONE		SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM MODEL OR END ITEM	SIZE C	CODE IDENT NO. 26512	LDW280-18249
	SCALE FULL		SHEET 3.00

LDW280-18249

LDW280-18249

FOR PHOTO REPRODUCTION

01

NAS 9-1100

LDW280-18250

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53601	LM-3(33)	1EA
PART NO.		GAEC SCH NO.	
LDW280-18250-15,-17&-18		52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53601	LM-3(33)	2 EA
PART NO.		GAEC SCH NO.	
LDW280-18250-11,-13&-19		52	

WORK PKG FUNCTION NO. 110 CCA-359 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REF INFO			
		PRIM NO.	CE 001		
LAST DASH NO. USED	-19	-207	MP-14	1/27/7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	J.GARRAFFO 1/20/67	RELIABILITY	
LAYOUT BY	HANSMANN G.D.H.	THERMO	AB 1/27/67
CHECKED BY	WCG 1/23/67		
GRP LDR	1/1/67		
VEH DES INT	1/27/67		
STRUCTURES	NM W/H 1/25/67	PROJ ENGR	1/26/67
STRUCTURES	1/26	REL GROUP	1/27/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE~QUAD II~RADIO ISOTOPE THERMAL GENERATOR~THERMAL SHIELD

SIZE	CODE IDENT NO.	
B	26512	LDW280-18250
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 1/27/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18250-19	E		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.040 x 2x2	T6	88	
	-18			ZEE				.040 x 3x3			
	-17			ZEE				.040 x 3x3			
	-15			ANGLE				.040x 2x3			
	-13			CHANNEL				.040x 3x34			
	LDW280-18250-11	E		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.040x 2x31	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18250

SCALE NONE

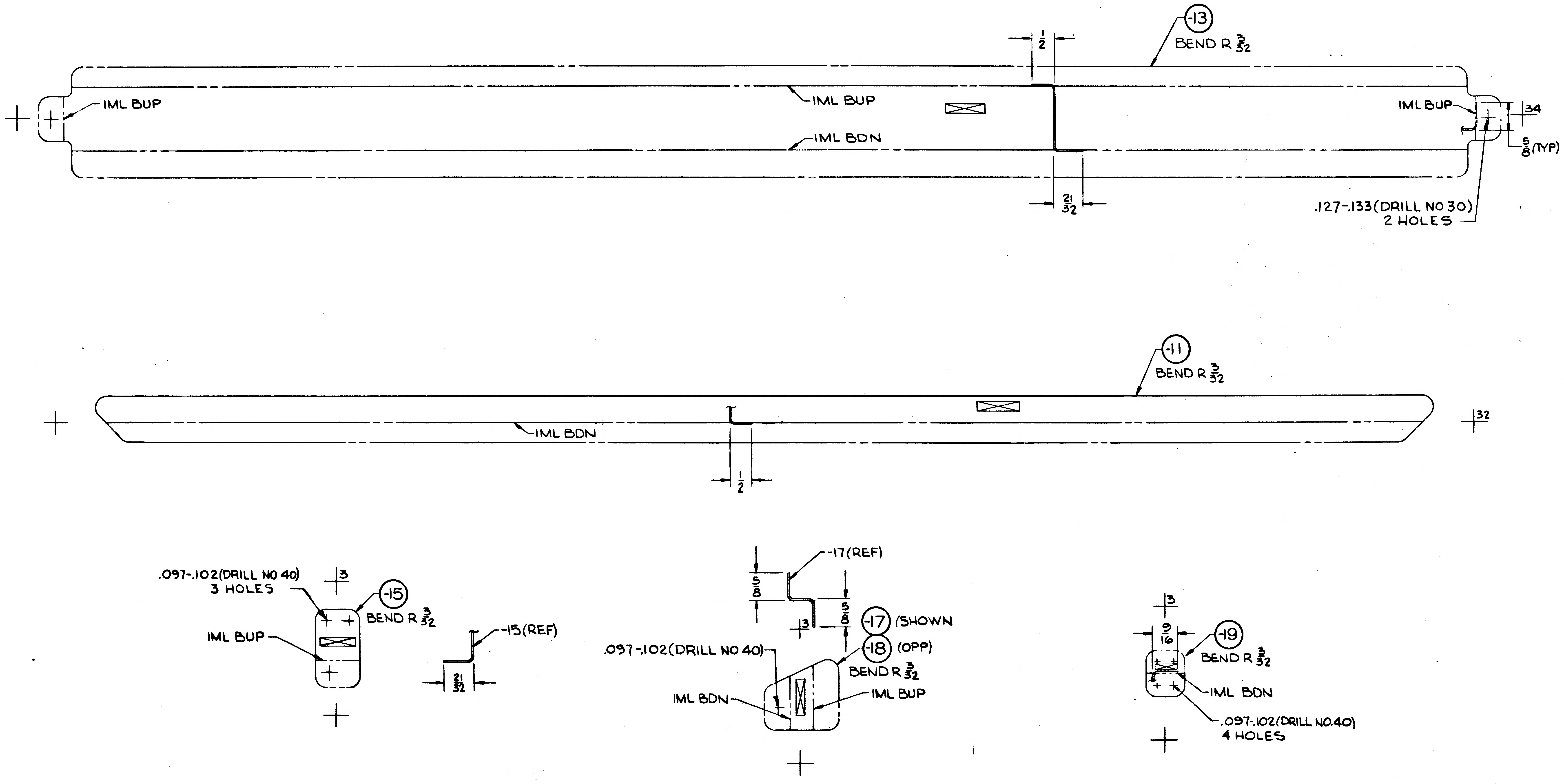
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.



30
25
-13
BEND R 3/32
1/2
IML BUP
IML BUP
IML BUP
IML BDN
.34
5/8 (TYP)
21/32
.127-.133 (DRILL NO 30) 2 HOLES
-11
BEND R 3/32
IML BDN
.32
1/2
.097-.102 (DRILL NO 40) 3 HOLES
.3
-15
BEND R 3/32
IML BUP
-15 (REF)
21/32
-17 (REF)
5/8
5/8
.13
-17 (SHOWN)
-18 (OPP)
.097-.102 (DRILL NO 40)
BEND R 3/32
IML BDN
IML BUP
.3
9/16
-19
BEND R 3/32
IML BDN
.097-.102 (DRILL NO.40) 4 HOLES

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM	SIZE F	CODE IDENT NO. 26512	LDW280-18250	
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

LDW280-18250

ENG 73-5 6-64

2 FOR PHOTO REPRODUCTION 1

K2

NAS 9-1100

LDW280-18253

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28731	LTA-8(18)	8EA
PART NO. LDW280-18253-11-13&-15		GAEC SCH NO. 52	

"WORK PKG FUNCTION NO.110" LCR-762

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	-15	GRUMMAN REF INFO		
LAST DASH NO. USED		PRIM NO. 207	LE(001) MP-14	1/24/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II (2)

DRAWN BY	J.GENTILE 1-23-67	RELIABILITY	
LAYOUT BY	J.ROGERS	THERMO	1/24/67
CHECKED BY	1-24-67		
GR LEADER	1/24/67		
VEH DES INT	1/24/67		
STRUCTURES	1/24/67	PROJ ENGR	1/24/67
STRUCTURES	1/24	REL GROUP	1/24/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT
DESCENT STAGE-GSE HEATER & INSTRUMENTATION LINES LWR OUTRIGGER

SIZE B
CODE IDENT NO. 26512
LDW280-18253
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 1/20/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18253-15	E		SUPPORT	CRES SH	MIL-S-5059	TYPE 301 1/2 H	.032 X 1 3/4 X 6 1/4	NONE		
	LDW280-18253-13	E		SUPPORT	CRES SH	MIL-S-5059	TYPE 301 1/2 H	.032 X 2 X 5 3/4	NONE		
	LDW280-18253-11	E		SUPPORT	CRES SH	MIL-S-5059	TYPE 301 1/2 H	.032 X 3 3/4 X 8 1/4	NONE		

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

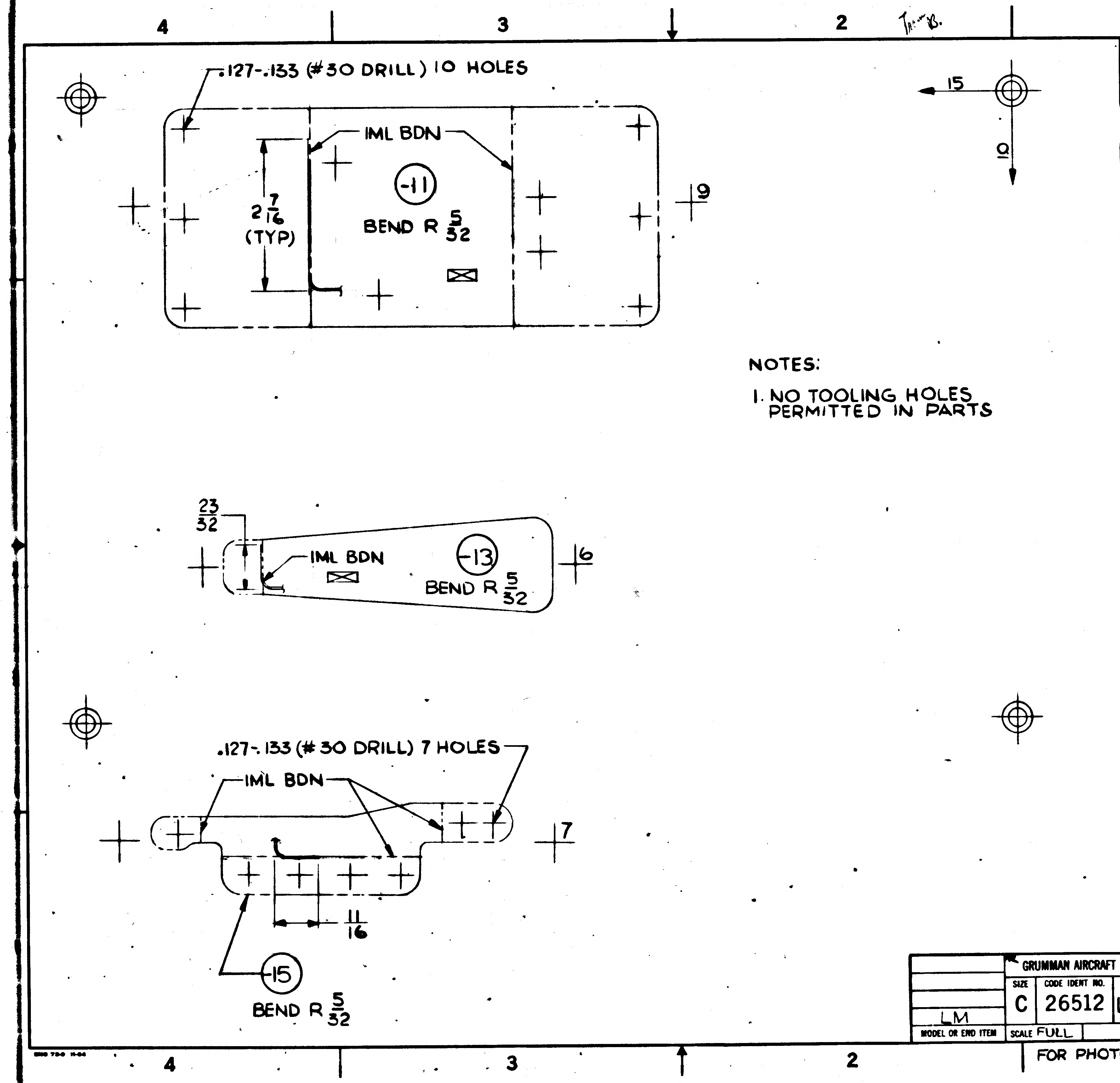
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18253
SCALE NONE
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100



NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMPPART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		SCALE	SHEET
LM	C	26512	LDW280-18253	FULL	300

FOR PHOTO REPRODUCTION

LDW280-18253

LDW280-18253

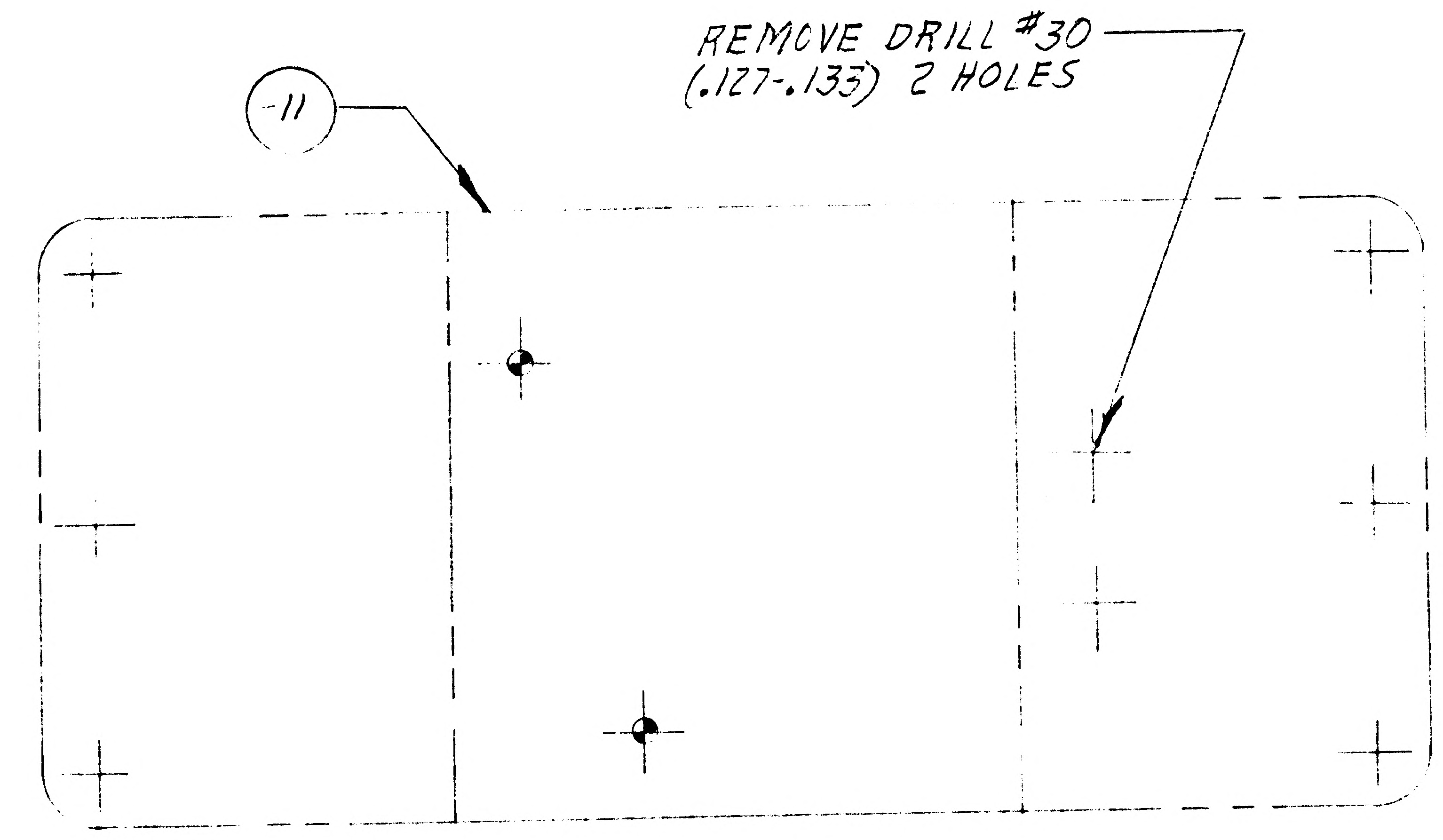
Q1

NAS 9-1100

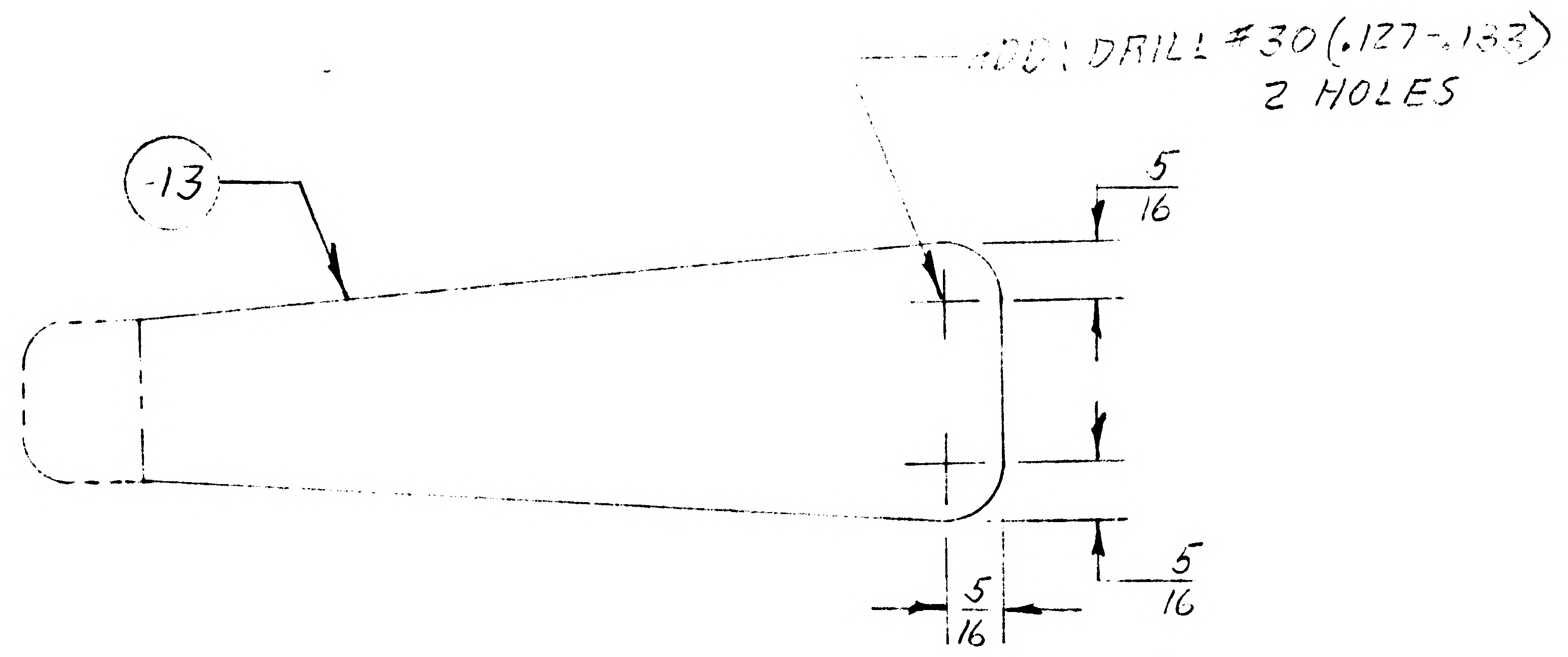
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18253 | EO NO. A1
CONTROL INFO NO. LM-5-11739



SHOP NOTE: FOR RWK, TURN PART AROUND (180°) & REDRILL HOLES MARKED ⊕. EXTRANEOUS HOLES TO BE PLUGGED WITH MS20470AD4.



IN -11, -13 & -15 MODEL BLOCK,
(8) REQD/MOD. WAS (1)

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG									2
REASON FOR EO				DESCRIPTION OF EO									✓ GAEC EO RELEASE
TO ELIMATE THE USE OF TERRY DRILLS THRU STEEL				IN -11, -13 & -15 MOD. BLK., (8) REQD./MOD. WAS (1) FROM -11, REMOVED DRILL #30 (2) HOLES TO -13, ADDED DRILL #30 (2) HOLES									
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			~	CH	RMC	
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	1/25/67			~	1/26/67	1-27-67	2-3-67	1/31/67
				REVISE DWG	RECORD EO	REWORK	SCRAP	1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
LM		LTH 8 (18)		PRIORITY	DRAWING TITLE						DRAWING NO.			EO NO.
				C	SUPPORT D/S GSE HEATER & INSTR. LINES ~ LWR.						LDW280-18253			A1

ISSUED BY E. STEINMETZ X6510 SECTION VD1 GROUP NO. 335 PL 5

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDN280--18253		EO NO. A4
CONTROL INFO NO. LM5-13143		

IN MOD BLK FOR -17 REVISE QTY.

22 REQD/MOD WAS 24 REQD/MOD -LTA8(18)

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
TO FACILITATE VEHICLE ON CARRIER	FOR-17 IN M/B REVISED QTY- 22 REQD WAS 24 REQD	JK —

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT							
✓			-17	DATE	4/8/67				4-8-67	4-8-67	4-13-67	4/8/67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S - HEATER SKIN	LDN280-18253	A4

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

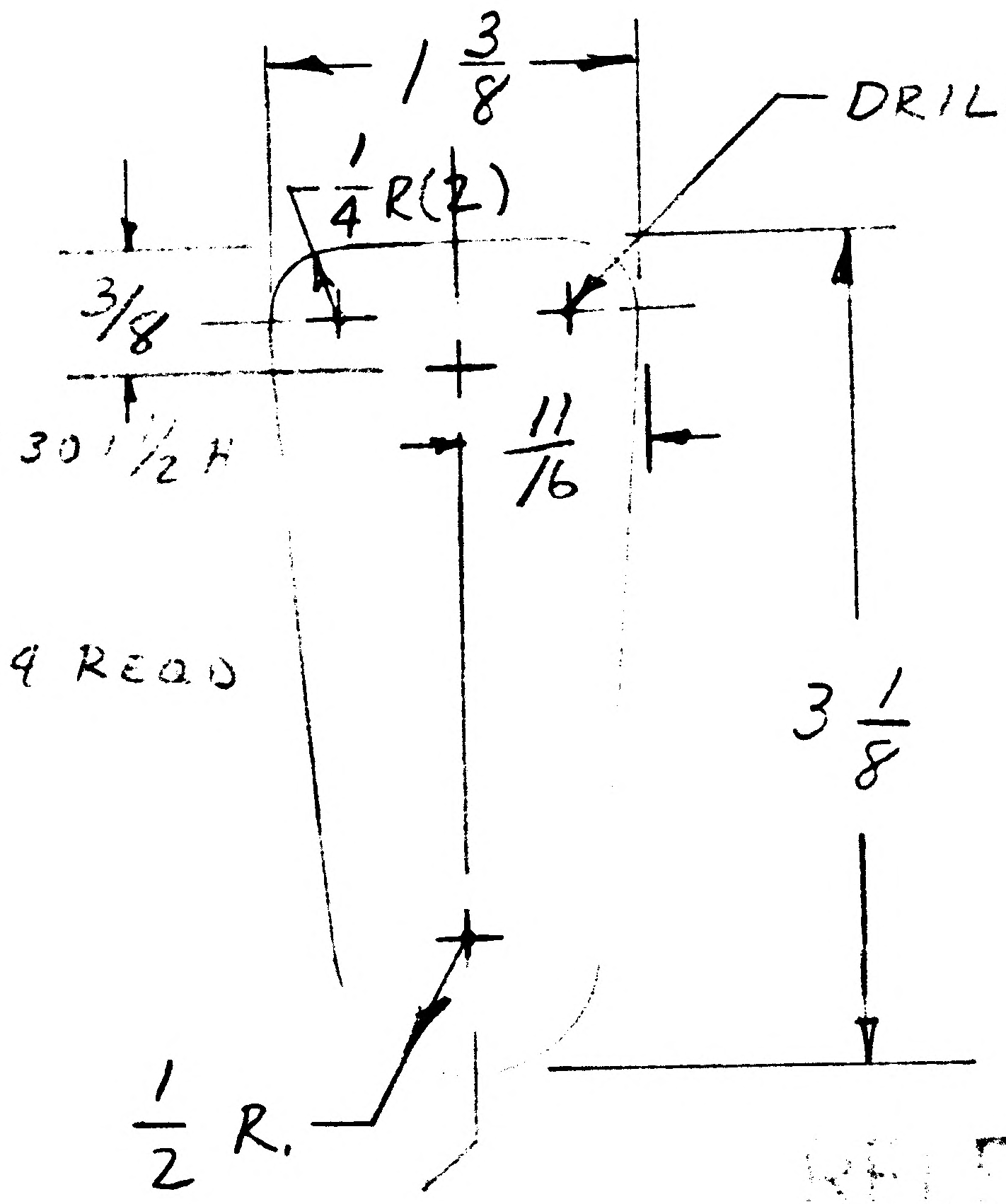
ENGINEERING ORDER

DWG. NO. LDW280 -18253		EO NO. A2
CONTROL INFO NO. LM-5-11736		

ADD -17

M/F: CRES, SH
MIL-S-5059 TYPE 301 1/2 H
(.032)

N/A-LDW280-28813 - 29 REQD
INTFE



RELEASED BY LIAISON (5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE CLAMPING SUPTS FOR GSE ELECT LINES	ADDED -17	15

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (8)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			~	NM	14	RMC	
✓		NOT	RQD	DATE	1/26/67			~	1-26-67	2007	1-31-67	1/27/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPT D/S-GSE HEATERS & INSTRUM LINES	LDW280-18253	A2

ISSUED BY Don Ragas X 6454 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

ENG 32.1 REV 3-65

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18253
EO NO. A3
CONTROL INFO NO. LM-5-11774

THIS IS A REVISION OF E.O. A1

FROM FIELD OF E.O. REMOVE -11 REWORK NOTE & MODEL BLOCK CHANGE

✓ EXTRANEOUS HOLES MAY BE PLUGGED WITH MS20470AD

RELEASED BY LIAISON (2)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
RELEASE GROUP REQUEST & NO. REQD. PREVIOUSLY CORRECTED	REF. E.O. A1 FROM FIELD OF E.O., REMOVED -11 REWORK NOTE & MODEL BLOCK CHANGE	C LE 046 18

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD. REWORK SCRAP

APPROVED BY	WT			~	RH	CH	Rme	
DATE	1/31/67			~	1-31-67	1-31-67	2-3-67	1-31-67
/	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPPORT D/S GSE HEATER & INSTR. LINES - LWR.	LDW280-18253	A3

ISSUED BY F. STEINMETZ X6510 SECTION VDI GROUP NO. 335 PL 5

LDW280-18256

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54515	LM-15 (45)	2
		LM-14 (44)	
		LM-13 (43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5 (35)	
LM	LDW280-54515	LM-4 (34)	2
PART NO. LDW280-18256-13		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54515	LM-15 (45)	
		LM-14 (44)	
		LM-13 (43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5 (35)	
LM	LDW280-54515	LM-4 (34)	1
PART NO. LDW280-18256-11		GAEC SCH NO. 50-2	

WORK PKG. FUNCTION NO. 110 (2)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00
REV			
SHEET			
REV			
SHEET			
REV			

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL© INFO

PRIM NO. 207 LE601 MP-14 2-14-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ~ ~
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY J. BIANCHINO 2/13/67
RELIABILITY
LAYOUT BY A. Ricker 2/9/67
CHECKED BY 2-9-67
GP LEADER 2/9/67
VEH DES INT J. Pusater 2/9/67
STRUCTURES 2/13/67
STRUCTURES TEB 2/13
WEIGHTS
PROJ ENGR R M Carpee 2-13-67
REL GROUP J Fagliavo 2/14/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FASTENER~
DESCENT STAGE~
S-BAND CABLE CANISTER COVER

SIZE B | CODE IDENT NO. 26512 | LDW280-18256
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR= 2/10/67

01 NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18256-13	E		TAPE, FASTENER	MAKE FROM GT535G-LBS017-4						
	LDW280-18256-11	E		TAPE, FASTENER	MAKE FROM GT535G-HCS038-0						

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18256

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

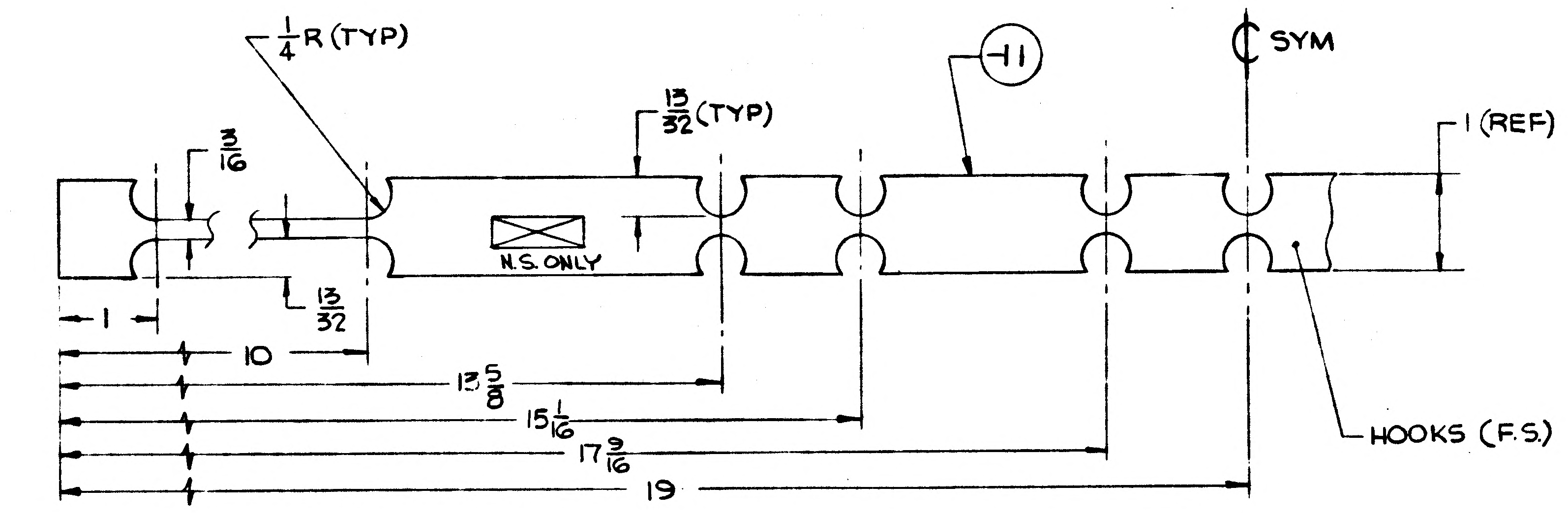
01

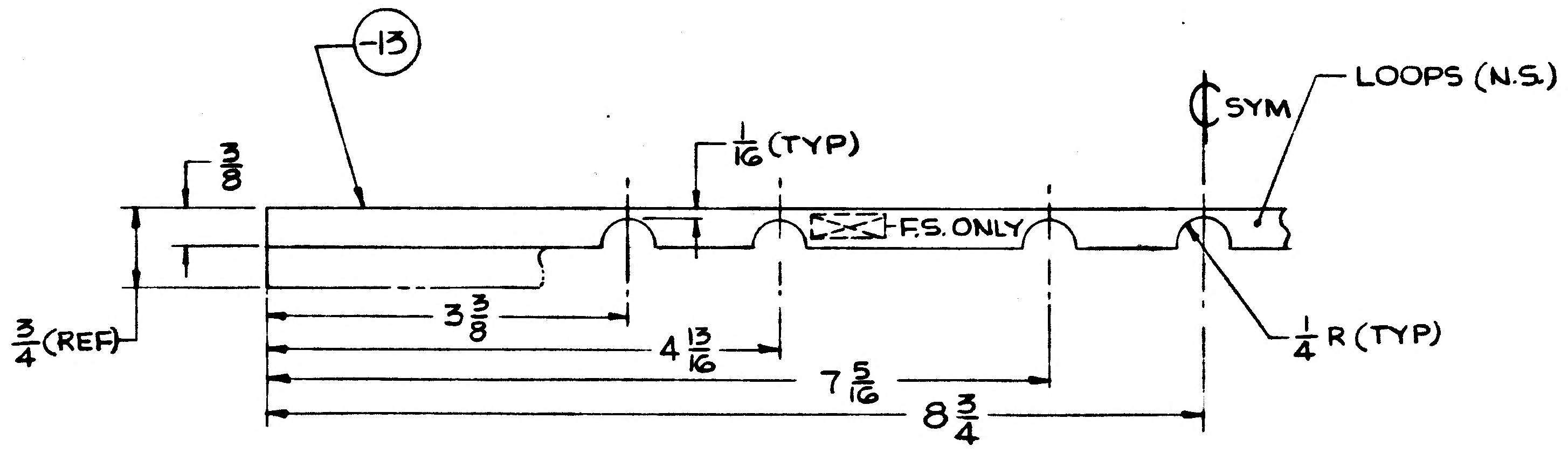
NAS 9-1100

LDW280-18256

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒	✓


1/4 R (TYP)
13/32 (TYP)
-11
℄ SYM
3/16
1 (REF)
N.S. ONLY
13/32
1
10
13 5/8
15 1/16
17 9/16
19
HOOKS (F.S.)


-13
3/8
1/16 (TYP)
℄ SYM
LOOPS (N.S.)
F.S. ONLY
3/4 (REF)
3 3/8
4 13/16
7 5/16
8 3/4
1/4 R (TYP)

LDW280-18256

	GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK		
LM	SIZE C	CODE IDENT NO. 26512	LDW280-18256
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ________

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~CONF~~ APPD
											REWORK	SCRAP			
A	1	1.00,1.10 2.00,3.00					✓	EO A1	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO	LM-1 THRU LM-15	NOT	REQD	LECUN 3-6-67	3/27/67	
	2	1.10,3.00					✓	②	REVISED NOTE 4 ADDED MAY BE PURCHASED-ETC. J.F.	NOT REQD					

CHG APPROVED										
LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	WEIGHTS	RELIABILITY					
A		3/18/67	3/20/67							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18258	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18258 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25654	LM-15(45)	4EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9 (39)	
		LM-8(38)	
		LM-7(37)	
		LM-6 (36)	
		LM-5(35)	
		LM-4(34)	
		LM-3(33)	
		LM-2(32	
LM	LDW280-25654	LM-1(31)	4 EA

PART NO. LDW280-18258-1,-3

GAEC SCH NO. 52

WORK PACKAGE FUNCTION NO. 110 2

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED B

LAST DASH NO. USED -13

GRUMMAN REL INFO A

PRIM NO. 207 JS(001) MP14 3-28-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
DRAWN BY E.LECUN 3-6-67
LAYOUT BY G.BARNES 3-20-67
CHECKED BY JB 3-9-67
~~GROUP LDR~~
VEH DES INT J Stadium 3/18/67
STRUCTURES 3/20/67
STRUCTURES EB 3/21
WEIGHTS
RELIABILITY
PROJ ENGR J.A. McLaughlin 3/27/67
REL GROUP 3/28/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL ASSY
DESCENT STAGE-BASE HEAT SHIELD
JOINT INSULATION

SIZE B
CODE IDENT NO. 26512
LDW280-18258 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AR	AR	SEE NOTE 4	E		FIBERFRAX							
AR	AR	GS577A-1			STAPLE	GRUMMAN STD						
2		LDW280-18258-13			CHANNEL	SEE NOTE 1						
	2	-11			CHANNEL	SEE NOTE 1						
		-3			CHANNEL ASSY					NONE	NONE	
		LDW280-18258-1	E		CHANNEL ASSY					NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

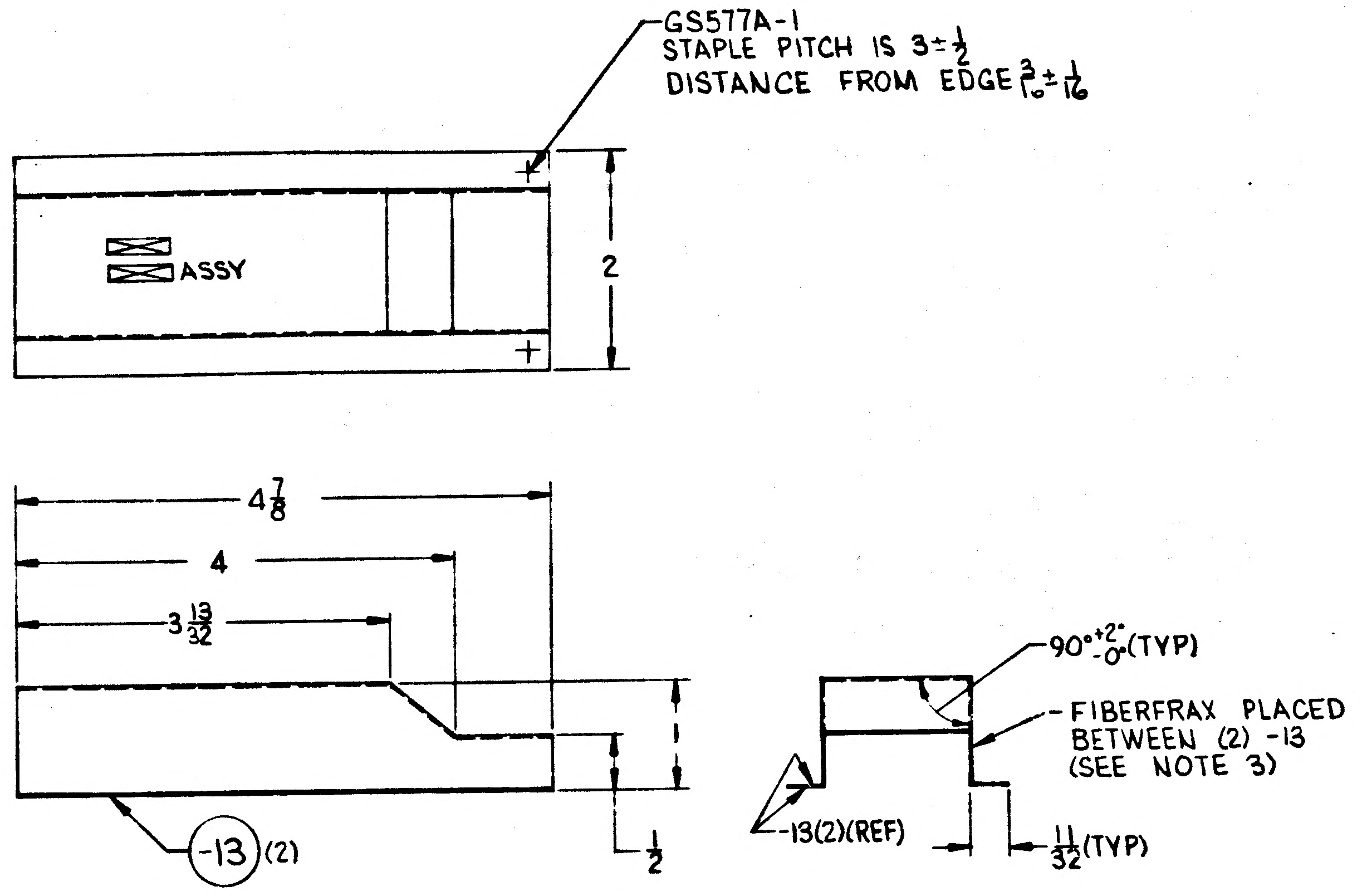
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18258	A
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

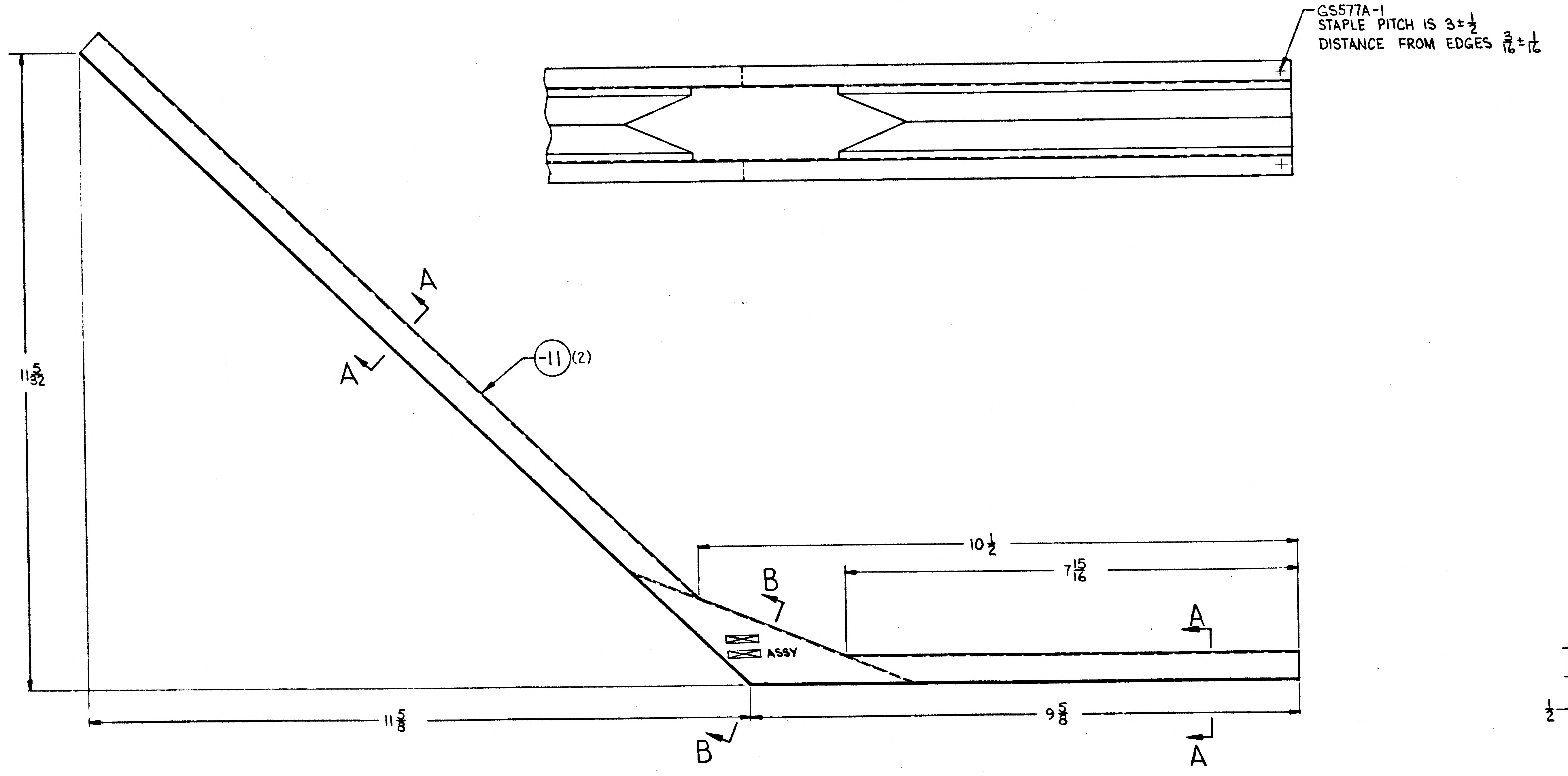

GS577A-1
STAPLE PITCH IS 3 ± 1/2
DISTANCE FROM EDGE 3/16 ± 1/16
ASSY
2
4 7/8
4
3 13/32
1/2
-13 (2)
90° +2° -0° (TYP)
FIBERFRAX PLACED BETWEEN (2) -13 (SEE NOTE 3)
-13(2)(REF)
11/32 (TYP)

LDW280-18258-3 ASSY

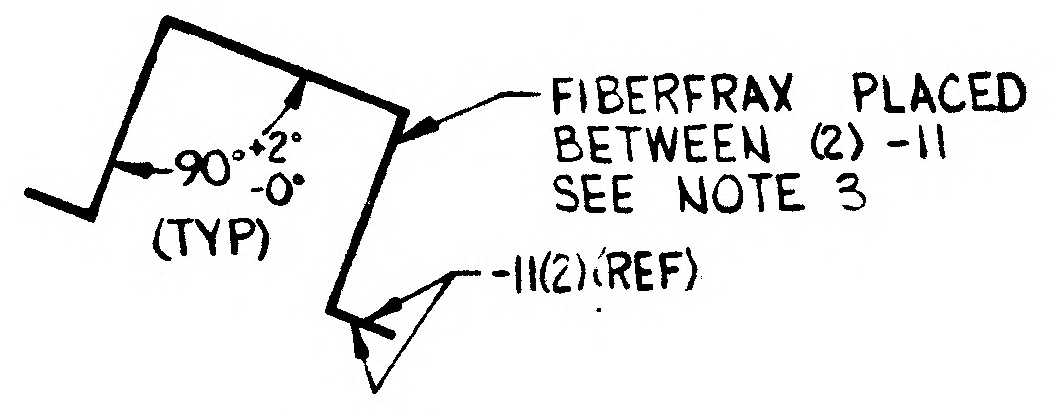
NOTES:

1. ANNEALED BRIGHT ROLLED NICKEL FOIL COMMERCIALLY PURE .0005 THICK PER ASTM-B162
2. NO TOOLING HOLES PERMITTED IN PARTS
3. FIBERFRAX AS REQD. BUTT JOINTS SO THAT THERE IS NO OVERLAP AND A MAXIMUM GAP OF 1/32
4. FIBERFRAX PAPER .020 THICK TYPE 970AH, NO BINDER, (UNRESTRICTED THICKNESS 1/32) MAY BE PURCHASED FROM CARBORUNDUM CO., NIAGARA FALLS, N.Y. (CODE IDENT 10646)
5. MANUFACTURE IN ACCORDANCE WITH LPC280-19

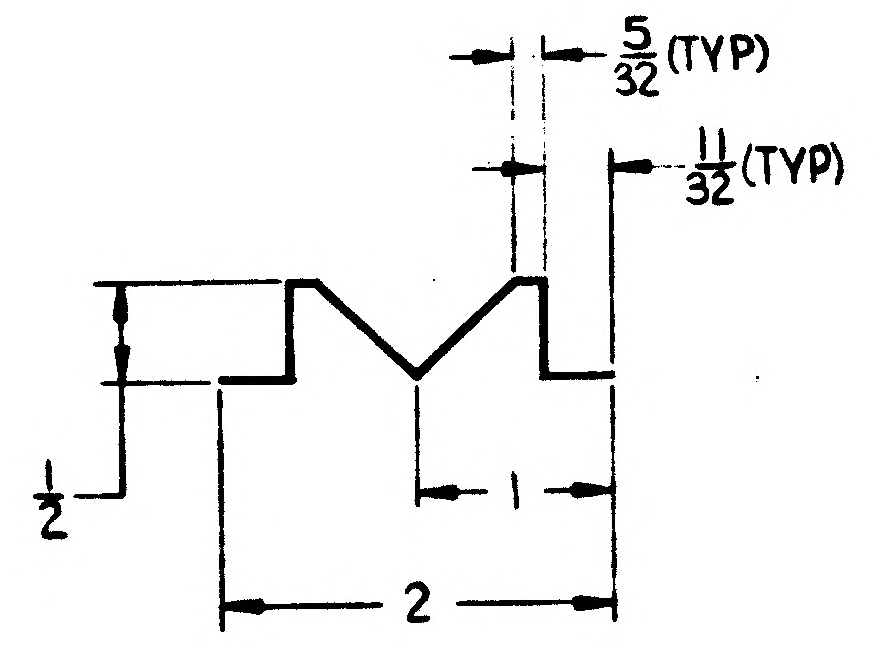
MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL STD 10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	


GS577A-1
STAPLE PITCH IS 3 ± 1/2
DISTANCE FROM EDGES 3/16 ± 1/16
A
A
-11 (2)
11 5/32
10 1/2
7 15/16
B
A
ASSY
11 5/8
9 5/8
B
A

LDW280-18258-1 ASSY


90° +2° -0° (TYP)
FIBERFRAX PLACED BETWEEN (2) -11 SEE NOTE 3
-11(2)(REF)

SECTION B-B


5/32 (TYP)
11/32 (TYP)
1/2
1
2

SECTION A-A
TYP 2 PLACES

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
	SIZE E	CODE IDENT NO. 26512	LDW280-18258	A
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280

EO NO. 1031

CONTROL INFO NO. LDW280B3821

FOR ALL DASH NO'S * ON THE FOLLOWING DWGS REMOVE LM-6(36) THRU LM-15(45) EFFECTIVITY

DRAWING NUMBER	TITLE	CHANGE NO.
LDW280P17518	SEE DWG	D3 ✓
-18258		B1 ✓
P17853		A6
P17529		C2
P17791		B8
-25693		B4
LDW280-25654	SEE DWG	B7

SWIP

* USE APPLICABLE DASH NO'S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCR 2829 PKG 1 (5)

REASON FOR EO: REVISED BASE HEAT SHIELD BLANKET

DESCRIPTION OF EO: FOR ALL DASH NO'S * ON NOTED DWGS REMOVED LM-6(36) THRU LM-15(45) EFF.

GAEC EO RELEAS. 7/10/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36)	
		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	6/26/68			6/25/68	6/28/68		6/28/68	7/9/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 1031

6/28/68

ISSUED BY F. MADDEN / P. THORJUSEN X1153 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18258
EO NO. B2
CONTROL INFO NO. LMS-30089

FOR -1 & -3

REMOVE LM-5(35) EFFECTIVITY
FOR N/A LDW 280-25654,

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2965 CCA 1235 (5)

REASON FOR EO: PARTS NOT REQD ON NEW DESIGN LM-5

DESCRIPTION OF EO: FOR -1 & -3 REMOVED LM-5(35) EFFECTIVITY FOR N/A LDW 280-25654,

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 200	LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY					RH			
DATE	1/8/69			1/8/69	12-30-68	12-27-68	1/8/69	1-3-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S BHS CHANNEL JOINT INSULATION	LDW280-18258	B2

LIAISON ISSUED BY G. BARNES / P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

LDW280-18260

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54554	LM-15 (45)	1 EA
		LM-14 (44)	
		LM-13 (43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5 (35)	
LM	LDW280-54554	LM-4 (34)	1 EA

PART NO. LDW280-18260-11-13-15 -17

GAEC SCH NO. 52-

WORK PACKAGE FUNCTION #110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00
REV			
SHEET			
REV			
SHEET			
REV			

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL^C INFO

PRIM NO. 207 | 1K(001) | mP-14-3/11/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J. GRIECO 2-24-67
LAYOUT BY	F. MARZELLA ~~3-8-67~~
CHECKED BY	D. FASS 2-27-67
GR LDR	J. Fraleoni 3/9/67
VEH DES INT	J. Purate 3/9/67
STRUCT	3/10/67
STRUCT	3/10
WEIGHTS	
PROJ ENGR	R.M. Carbee 3-10-67
REL GROUP	Botti 3-11-67

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DECENT STAGE- SCIENTIFIC EQUIPMENT
ACCESS DOOR LOWER DRUM GUARD

SIZE B | CODE IDENT NO. 26512 | LDW280-18260

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 3-3-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18260-17	E		STRAP	AL ALLOY SH	QQ-A-250/12	7075-0	.032 x 4 x 7	T6	88 & SEE NOTE 2	
	↕ -15	↕		PLATE	↕	↓	7075-0	.032 x 5 x 6	T6	88	
	↕ -13	↕		PLATE	↕	↓	7075-T6	.032 x 4 x 5	NONE	88	
	LDW280-18260-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075-0	.032 x 3 x 6	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL ALLOY HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18260

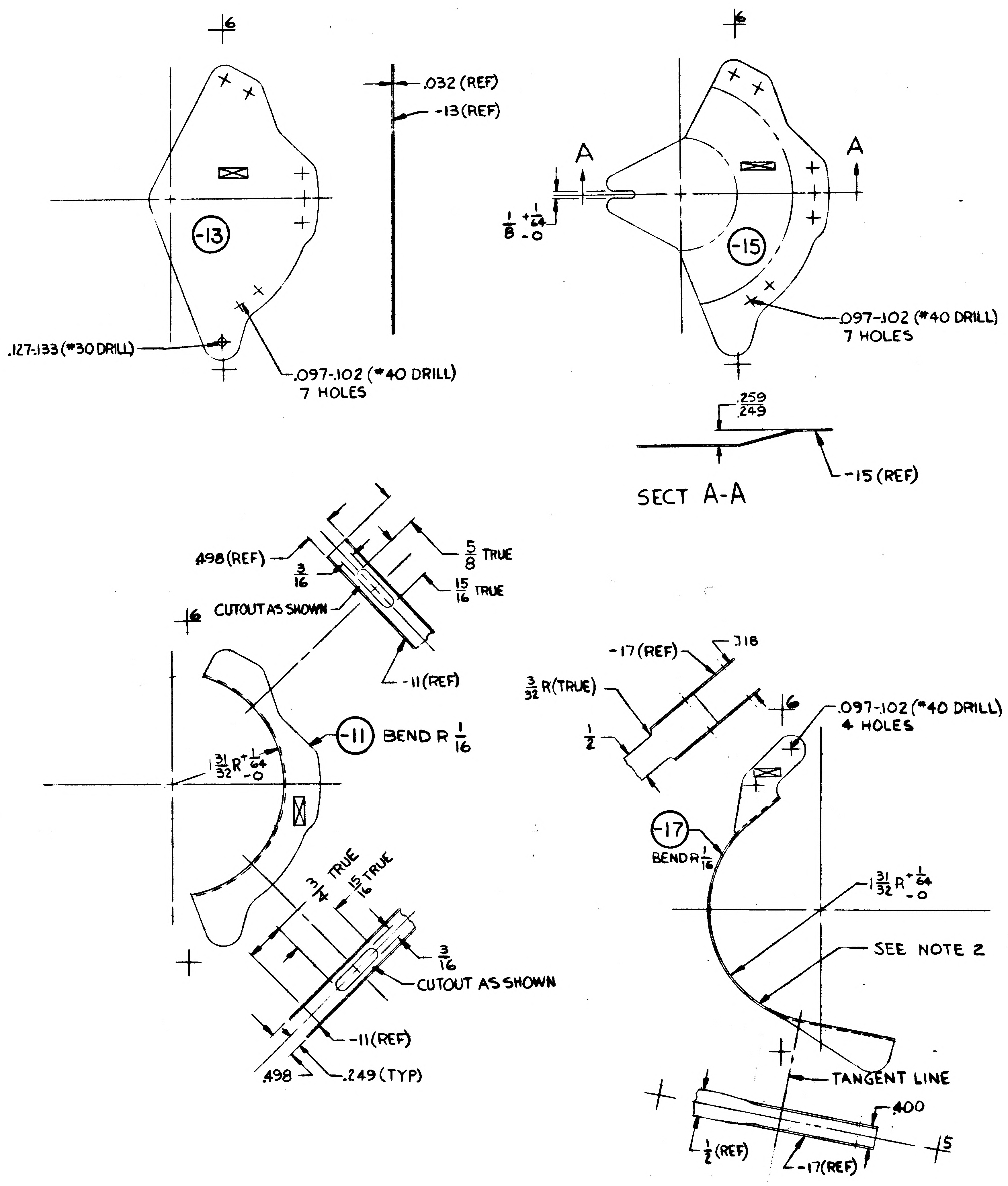
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100



-13
.032 (REF)
-13 (REF)
.127-.133 (#30 DRILL)
.097-.102 (#40 DRILL)
7 HOLES
A
A
1/8 +1/64 -0
-15
.097-.102 (#40 DRILL)
7 HOLES
.259
.249
SECT A-A
-15 (REF)
.498 (REF)
3/16
5/8 TRUE
15/16 TRUE
CUTOUT AS SHOWN
-11 (REF)
-11 BEND R 1/16
1 31/32 R +1/64 -0
3/4 TRUE
15/16 TRUE
3/16
CUTOUT AS SHOWN
-11 (REF)
.498
.249 (TYP)
-17 (REF)
.118
3/32 R (TRUE)
1/2
.097-.102 (#40 DRILL)
4 HOLES
-17
BEND R 1/16
1 31/32 R +1/64 -0
SEE NOTE 2
TANGENT LINE
.400
1/2 (REF)
-17 (REF)

NOTE
1 NO TOOLING HOLES PERMITTED IN PARTS
2 FINISH PER LSP 14-10300 TYPE I ON SURFACE INDICATED.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

	SIZE	CODE IDENT NO.	
LM	E	26512	LDW280-18260
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

LDW280-18260

LDW280-18260

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG NO. LDW280-18260
EO NO. A1
CONTROL INFO NO. LM 5-13043

IN B/M F/D & M/B REMOVE LDW280-18260-11 CHANNEL.

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: PART CANNOT BE FABRICATED WITH EXISTING TOLERANCE & MAT'L

DESCRIPTION OF EO: IN F/D, B/M & M/B: REMOVED -11

GAEC EO RELEASE		
JK		
	—	

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34) THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-11

APPROVED BY	WT			~	MBt	CH	RMe	
DATE	3/21/67			~	4/4/67	3-23	4-6-67	4-4-67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL-DESCENT STAGE-SCIENTIFIC EQUIP. ACCESS DOOR LOWER DRUM GUARD	LDW280-18260	A1

ISSUED BY F. MARZELLA / DON RAGAS X6510 SECTION VEHICLE DESIGN GROUP NO. 335 PL 5

01

NAS 9-1100

LDW280-18261

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54548	LM-15(45)	2 EA
		LM-14(44)	2 EA
		LM-13(43)	2 EA
		LM-12(42)	2 EA
		LM-11(41)	2 EA
		LM-10(40)	2 EA
		LM-9(39)	2 EA
		LM-8(38)	2 EA
		LM-7(37)	2 EA
		LM-6(36)	2 EA
		LM-5(35)	2 EA
LM	LDW280-54548	LM-4(34)	2 EA
PART NO. LDW280-18261-15 & -17		GAEC SCH NO. 502	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54548	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54548	LM-4(34	1 EA
PART NO. LDW280-18261-11 & -13		GAEC SCH NO. 502	

WORK PKG FUNCTION #110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN RELC INFO		
		PRIM NO.	JK(001)	
LAST DASH NO. USED	-17	207	mP-14	2/27/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS – DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	A.SCHMADTKE 2-12-67	RELIABILITY	
LAYOUT BY	F. MARZELLA 2-23-67		
CHECKED BY	RL 2-20-67		
GR LEADER	J. STRAKOSCH		
VEH DES INT	J. Pusateri 2/23/67		
STRUCTURES	2/23/67	PROJ ENGR	2-24-67
STRUCTURES	2/24	REL GROUP	2/24/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE-SCIENTIFIC EQUIP ACCESS DOOR
LOWER DRUM SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18261
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 2-24-67

01 NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18261-17	E		SHIM	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 X 1 X 2	NONE	88	
	-15			PLATE			7075-T6	.032 X 3 X 3	NONE		
	-13			ZEE			7075	.032 X 3 X 4	T6		
	LDW280-18261-11	E		ZEE	AL ALLOY SH	QQ-A-250/12	7075	.032 X 3 X 4	T6	88	-

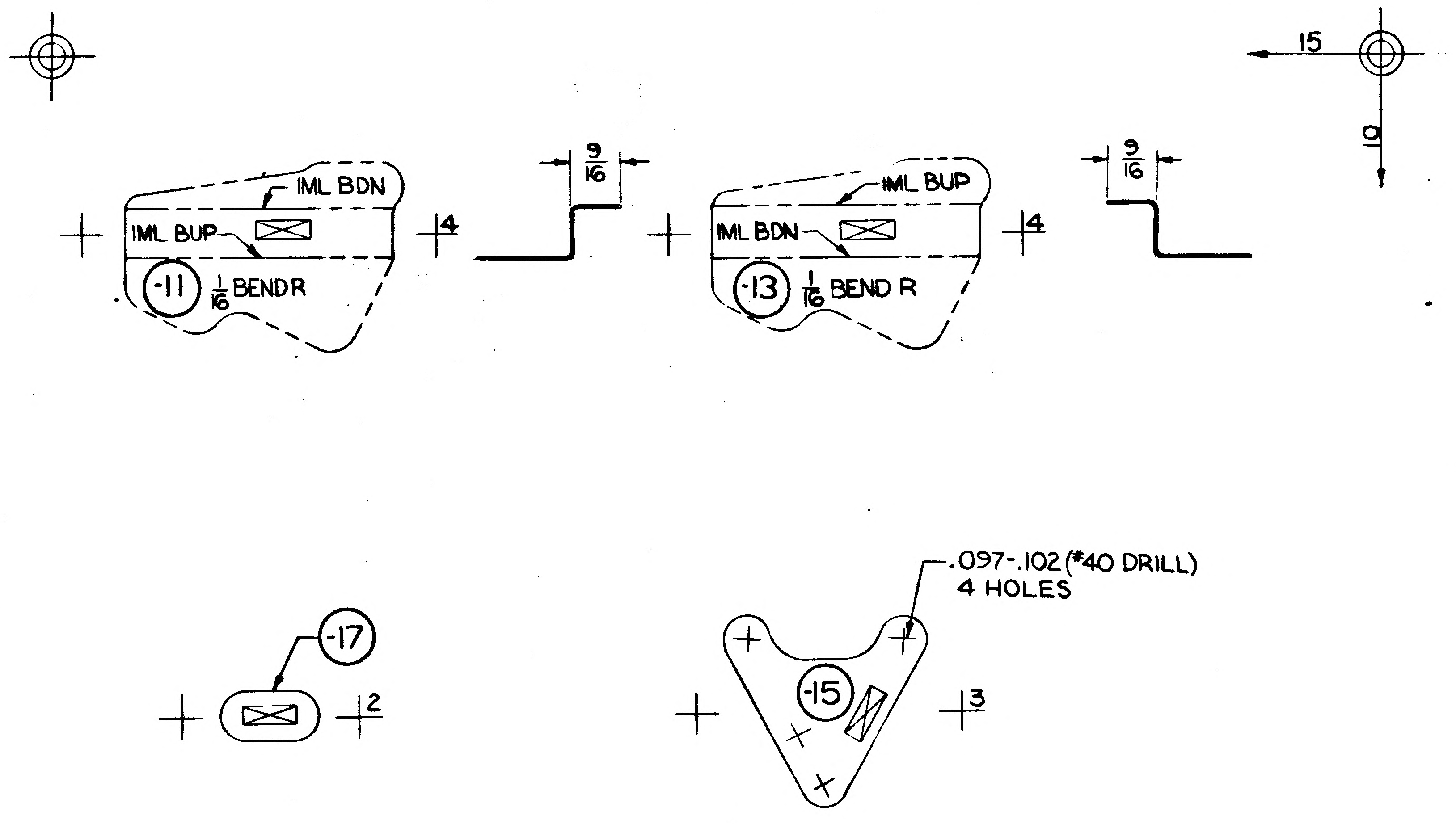
SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL ALY HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18261
SCALE NONE
SHEET 2.00

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18261
	SCALE FULL		SHEET 3.00

LDW280-18261

FOR PHOTO REPRODUCTION

IFR

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00						E.O. A1	E.O. A1 INITIAL DRAWING RELEASE, PARTS MADE PER E.O.	LM-1 (31)	NOT	REQD	BIANCHINO 3-16-67		

CHG APPROVED	LTR	~~GROUP LDR~~	VEH. DES. INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
	A		JKS 4/6/67	WJH 4/10/67			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	DWG NO.	REV
B	26512	LDW280-18262	A

SCALE NONE

SHEET 1.10

ENG 77.18 3-66

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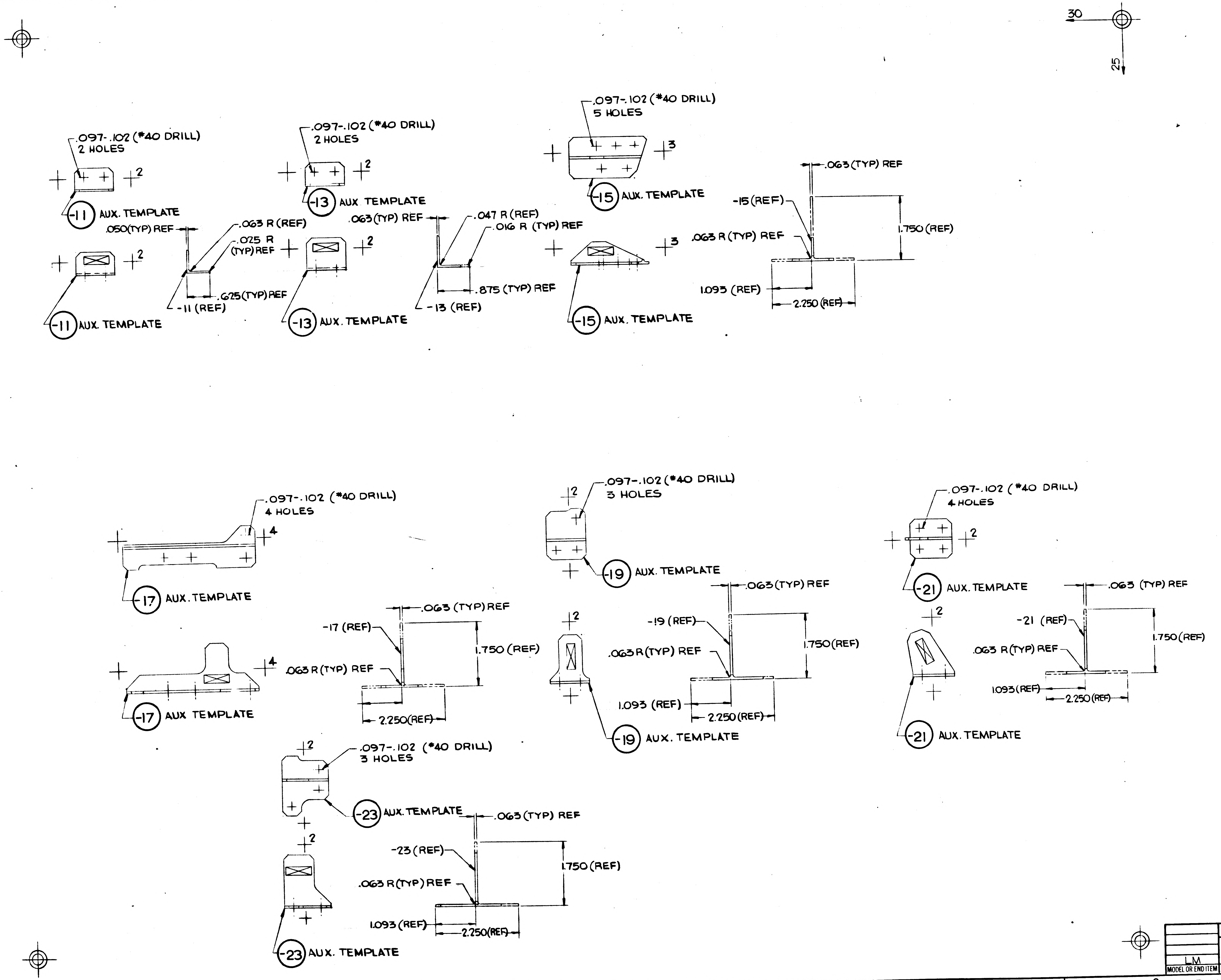
NAS 9-1100


30
25
.097-.102 (*40 DRILL)
2 HOLES
-11 AUX. TEMPLATE
.050(TYP) REF
.063 R (REF)
.025 R (TYP) REF
-11 (REF)
.625(TYP) REF
-11 AUX. TEMPLATE
.097-.102 (*40 DRILL)
2 HOLES
-13 AUX TEMPLATE
.063(TYP) REF
-13 AUX. TEMPLATE
.047 R (REF)
.016 R (TYP) REF
.875 (TYP) REF
-13 (REF)
.097-.102 (*40 DRILL)
5 HOLES
-15 AUX. TEMPLATE
-15 AUX. TEMPLATE
.063 (TYP) REF
-15 (REF)
.063 R (TYP) REF
1.750 (REF)
1.093 (REF)
2.250 (REF)
.097-.102 (*40 DRILL)
4 HOLES
-17 AUX. TEMPLATE
-17 AUX TEMPLATE
.063 (TYP) REF
-17 (REF)
.063 R (TYP) REF
1.750 (REF)
2.250(REF)
.097-.102 (*40 DRILL)
3 HOLES
-19 AUX. TEMPLATE
-19 AUX. TEMPLATE
.063 (TYP) REF
-19 (REF)
.063 R (TYP) REF
1.750 (REF)
1.093 (REF)
2.250 (REF)
.097-.102 (*40 DRILL)
4 HOLES
-21 AUX. TEMPLATE
-21 AUX. TEMPLATE
.063 (TYP) REF
-21 (REF)
.063 R (TYP) REF
1.750 (REF)
1093(REF)
2.250(REF)
.097-.102 (*40 DRILL)
3 HOLES
-23 AUX. TEMPLATE
-23 AUX. TEMPLATE
.063 (TYP) REF
-23 (REF)
.063 R (TYP) REF
1.750 (REF)
1.093 (REF)
2.250(REF)
2
3
4

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ [redacted]	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18262 A

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM MODEL OR END ITEM	SIZE F	CODE IDENT NO. 26512	LDW280-18262	A
	SCALE FULL		SHEET 3.00	

2 FOR PHOTO | REPRODUCTION 1 . K2

01

NAS 9-1100

LDW280-18262 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23681	LM-1(31)	2
PART NO. LDW280-18262-23		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23681	LM-1(31)	1 EA
PART NO. LDW280-18262-11, -13, -15, -17, -19 & -21		GAEC SCH NO. 55	

WORK PKG FUNCTION NO. 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-23	PRIM NO. 207	JK(00) MP-14A-4/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 .010 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	✓
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J. BIANCHINO 3/16	RELIABILITY	
LAYOUT BY	G. HANSMANN		
CHECKED BY	3-17-67		
~~GP LEADER~~			
VEH DES INT	4/6/67		
STRUCTURES	4/10/67	PROJ ENGR	4-10-67
STRUCTURES	ES 4/10	REL GROUP	4-12-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TEE ~
DESCENT STAGE ~ He PRESSURE,
MODULE ~ LINES SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18262	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18262-23	E		TEE	AL ALLOY EXTR.	QQ-A-200/11	2024T6511	DIE NO. 33481 x 2	NONE	88	
	-21							DIE NO. 33481 x 2			
	-19							DIE NO. 33481 x 2			
	-17							DIE NO. 33481 x 5			
	-15			TEE		QQ-A-200/11	2024T6511	DIE NO. 33481 x 3			
	-13			ANGLE		QQ-A-200/3	2024T3511	DIE NO. 23299 x 2			
	LDW280-18262-11	E		ANGLE	AL ALLOY EXTR	QQ-A-200/3	7075T6511	DIE NO. 13637 x 2	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18262 | A

SCALE NONE | SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18262 EO NO. B1
CONTROL INFO NO. LDW280A7298

SHEET 1.00

IN MODEL BLOCK FOR -11, -13, -15, -17, -19 & -21 ADD:

LM	LDW280-23681	LTA-5(15)	1 EA
MODEL	N/A	MODULE	REQD

IN MODEL BLOCK FOR -23 ADD:

LM	LDW280-23681	LTA-5 (15)	2
MODEL	N/A	MODULE	REQD

DETAIL SPEC REQ		CL II ENGRG CHG	X	CL I ENGRG CHG		LCD 19-1032

5

REASON FOR EO: UPDATE OF LTA-5 TO ADD PARKER REDUCING VALVE-DESCENT MODULE

DESCRIPTION OF EO: IN MODEL BLOCK FOR -11, -13, -15 -17 -19 & -21 ADDED: LM - LDW280-23681 LTA-5(15) - 1EA FOR -23 ADDED. LM - LDW280-23681 - LTA-5(15) 2 REQD

GAEC EO RELEASE Ⓡ C JK 6/7/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-5(15)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	RB	[illegible]			[illegible]		[illegible]	[illegible]
✓		NOT	REQ	DATE	6/1/67	6/1/67			[illegible]		6/2/67	6/6/67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	PROD	V.D.1	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	TEE - DESCENT STAGE - He PRESSURE MODULE - LINES SUPPORT	LDW280-18262	B1

ISSUED BY N. Grawl x1471 SECTION PROPULSION GROUP NO. 270 PL 25

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18262
EO NO. B2
CONTROL INFO NO. LM-2-3738

IN B/M (COMMERCIAL SPECIFICATION COLUMN) REVISE CALLOUTS:
FOR -11; "7075T6511" SHOULD BE "2024T3511"
FOR -15, -17, -19, -21 & -23; "2024T6511" S/B "7075T6511"

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

2

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
(DRAWING CORRECTION ONLY) SPEC CALLOUT DISAGREES WITH DIE NO. CALLOUT	IN B/M, REVISED COMM SPEC CALLOUTS: FOR -11; 2024T3511 WAS 7075T6511 FOR -15, -17, -19, -21 & -23; 7075T6511 WAS 2024T6511	JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQD

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				~				
DATE	7/21/67			~	7/19/67	7/14/67	7/2,	7/19/67
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	TEE ~ DESCENT STAGE ~ HELIUM PRESSURE MODULE ~ LINES SPT	LDW280-18262	B2

ISSUED BY LIAISON J. MALONEY 7/17/67 x3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LE0280 EO NO. 813
CONTROL INFO NO. LDW280B0727

FOR ALL DASH NO'S ON THE FOLLOWING DWGS
REMOVE LTA-5(15) REQTS & ADD PD-2(09) EFF,
N/A & QTY SAME AS ON LTA-5(15)

DRAWING NO. *	TITLE	CHANGE	
LDW280-23681	SEE DWG	B6	✓
LDW280-17831	↑	B3	✓
LDW280-17832		B3	✓
LDW280-17833		B3	✓
LDW280-17834		B6	✓
LDW280-17859		B4	✓
LDW280-18262		B3	✓
LDW280-18263		B3	
LDW280M17716	↓	B2	
LDW280M17524	SEE DWG	B4	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2413	5

REASON FOR EO
FLIGHT He MODULE REQD FOR FURTHER TESTS @ WSTF

DESCRIPTION OF EO
FOR * REMOVED LTA-5(15) EFF & ADDED PD-2(09) EFF

Ⓡ GAEC C EO RELEASE: VC 12/11/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-5(15)	
		PD-2(09)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT	REQD

APPROVED BY								
DATE	12/6/67			12-5-67	12/7/67		12/6/67	12-9-67
—	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	813

CDR 12/8/67
ISSUED BY G BARNES / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		MS20470AD3	E		RIVET	STD PART						
1		LDW280-18263-13	E		BRACKET	AL ALLOY SH	QQ-A-250/4	2024-T3	.032×5×7	NONE	88	
	1	-11			BRACKET	AL ALLOY SH	QQ-A-250/4	2024-T3	.032×5×8	NONE	88	
		-3			BRKT ASSY					NONE	NONE	
		LDW280-18263-1	E		BRKT ASSY					NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18263	A

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A		1.00 1.10 2.00 3.00					✓	EO A1 ®	EO A1 - INITIAL DWG RELEASE PARTS MADE PER EO	LM-1	NOT	REQD	W. CONROY 3-10-67		

CHG APPROVED	LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	PROJ ENG	REL GROUP			
	A		3/18/67	3/20/67								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18263	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18263 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23681	LM-1(31)	1 EA
PART NO. LDW280-18263-1&-3		GAEC SCH NO. 55	

WORK PACKAGE FUNCTION 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10							
REV	A	A							
SHEET	2.00	3.00							
REV	A	A							
SHEET									
REV									

LAST SECT LTR USED ~

LAST DASH NO. USED -13

GRUMMAN REL INFO A

PRIM NO.	JK(001)		
207	MP-14	A-3/21/7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE ✓

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	W. CONROY 3-10-67	RELIABILITY	
LAYOUT BY	G. BARNES		
CHECKED BY	JB 3-15-67		
~~GR LEAD.~~			
VEH DES INT	3/17/67		
STRUCTURES	NM WJH 3/20/67	PROJ ENGR	R. M. Carbee (E) 3-21-67
STRUCTURES	3/2	REL GROUP	3/21/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

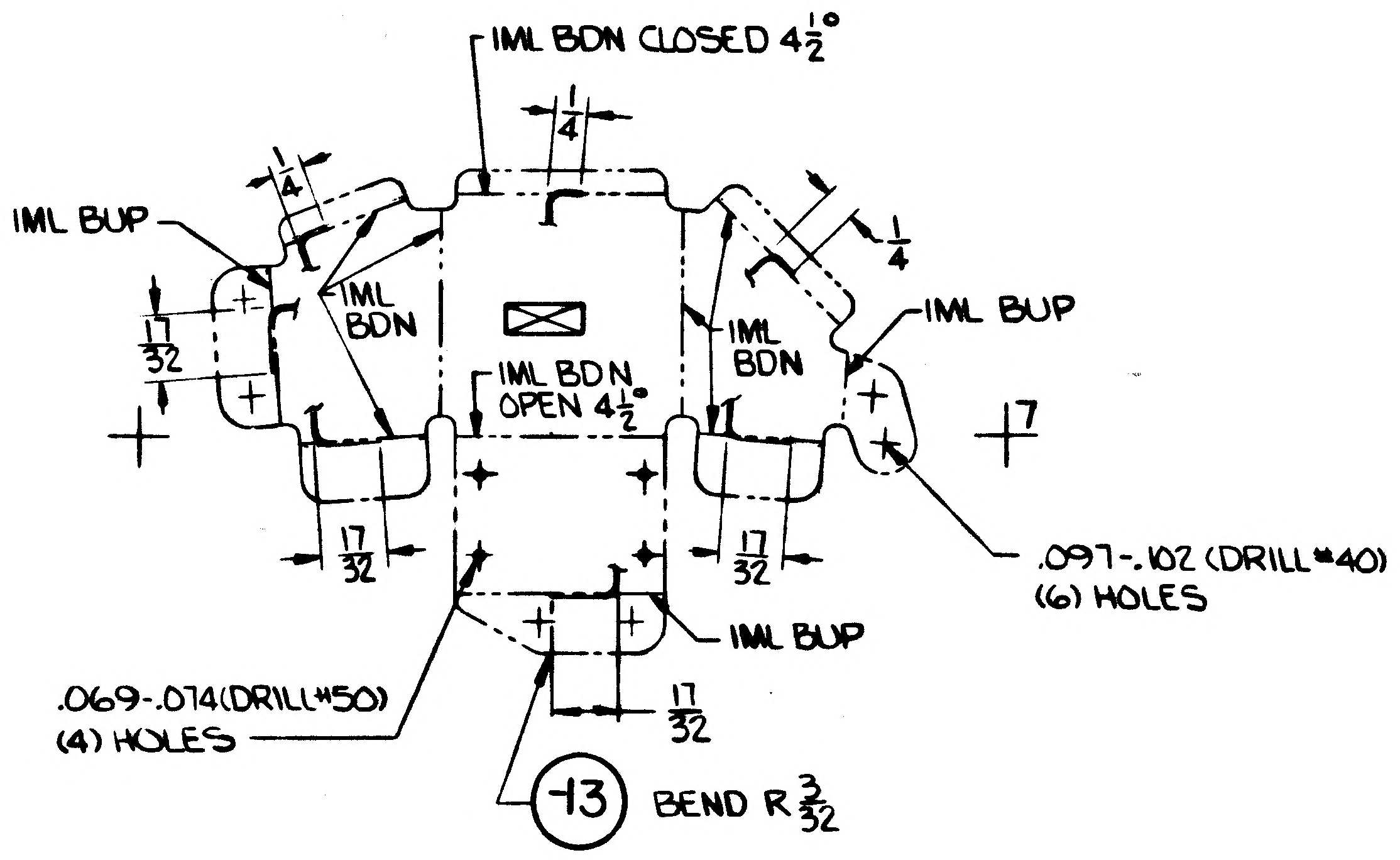
BRACKET
DESCENT STAGE He PRESS MODULE
VALVE SUPPORT

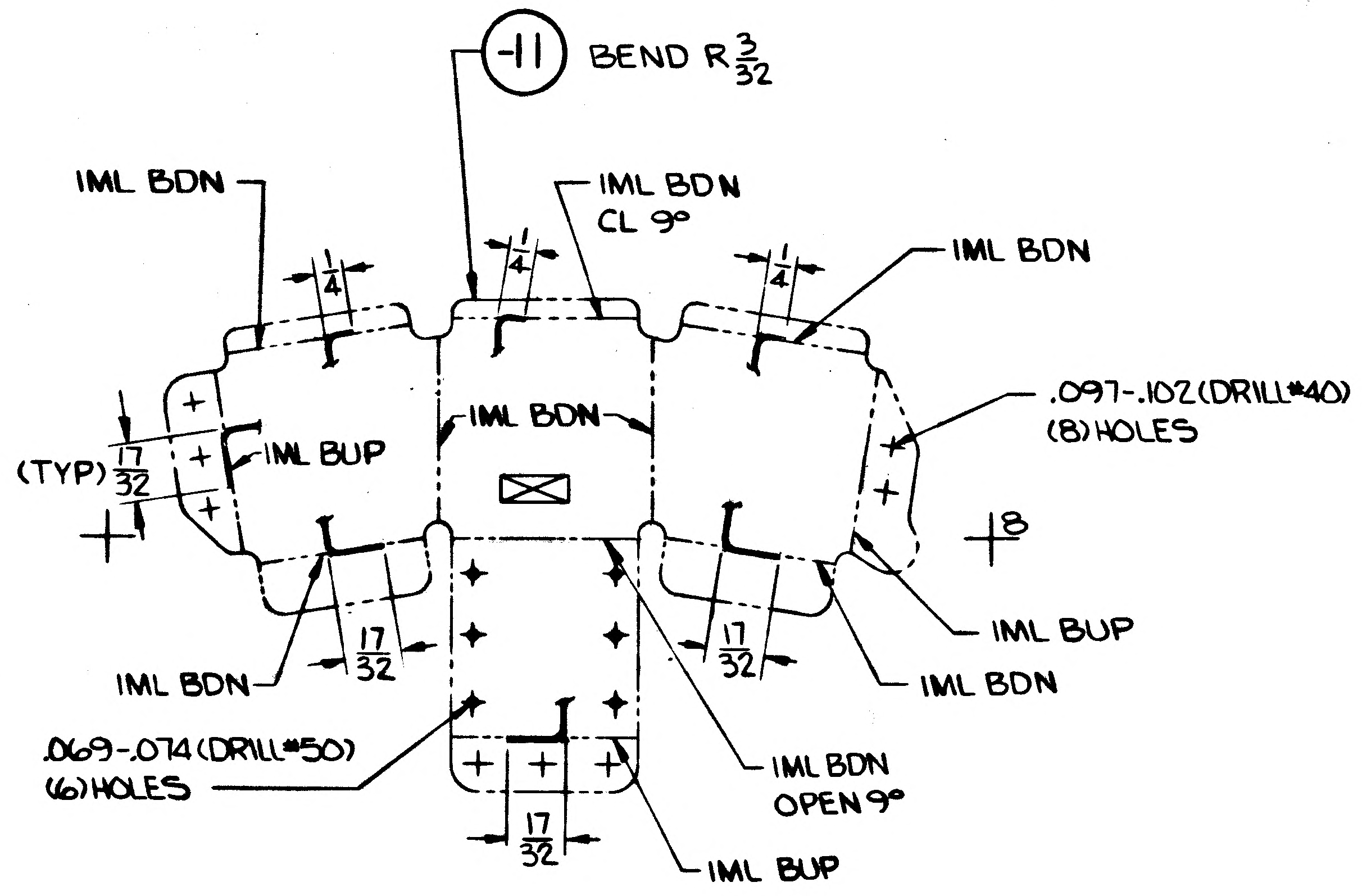
SIZE	CODE IDENT NO.		
B	26512	LDW280-18263	A
SCALE	NONE	SHEET 1.00 OF 4	

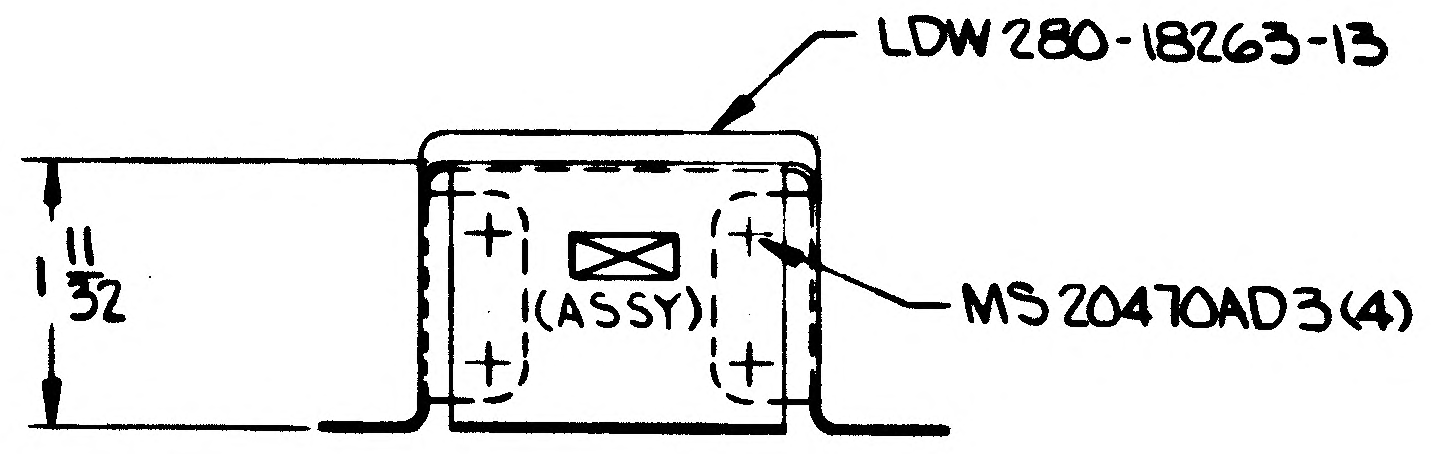
ENG 77.1 12-65

01

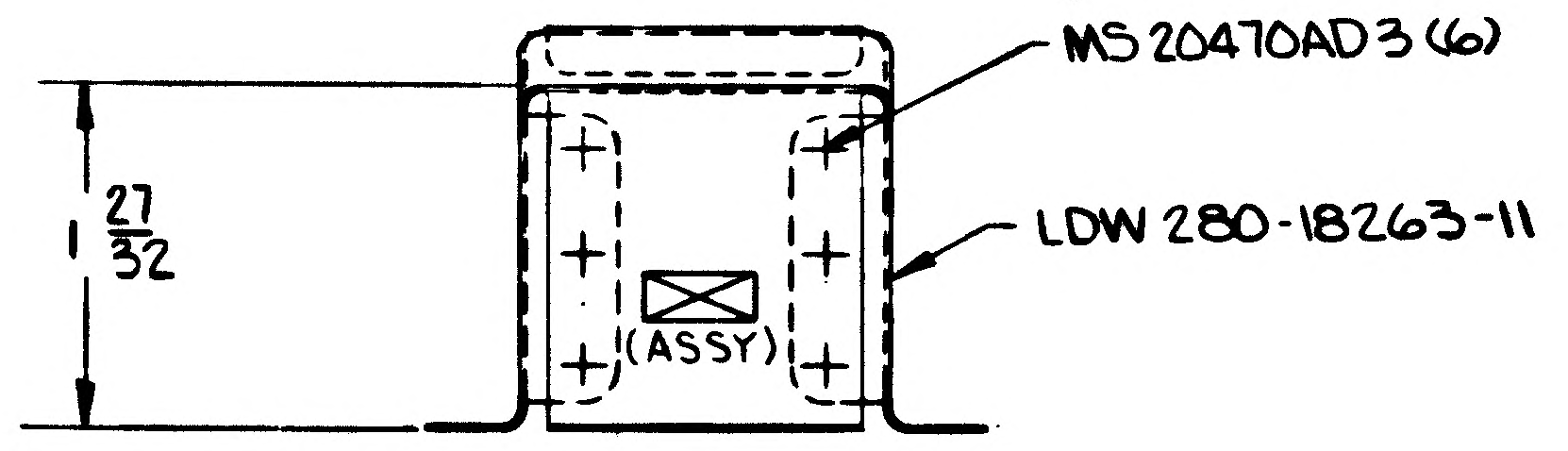
NAS 9-1100


IML BDN CLOSED 4½°
1/4
IML BUP
1/4
1/4
IML BDN
IML BDN
IML BUP
11/32
IML BDN OPEN 4½°
17/32
17/32
+7
.097-.102 (DRILL #40) (6) HOLES
.069-.074 (DRILL #50) (4) HOLES
IML BUP
17/32
-13 BEND R 3/32


-11 BEND R 3/32
IML BDN
IML BDN CL 9°
IML BDN
1/4
1/4
1/4
IML BDN
(TYP) 17/32
IML BUP
.097-.102 (DRILL #40) (8) HOLES
+8
IML BDN
17/32
17/32
IML BUP
IML BDN
.069-.074 (DRILL #50) (6) HOLES
IML BDN OPEN 9°
17/32
IML BUP


LDW 280-18263-13
11/32
(ASSY)
MS 20470AD3 (4)

LDW 280-18263-3 ASSY


MS 20470AD3 (6)
LDW 280-18263-11
27/32
(ASSY)

LDW 280-18263-1 ASSY

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01

NAS 9-1100

LDW280-18263 A

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE E	CODE IDENT NO. 26512	LDW280-18263	A
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

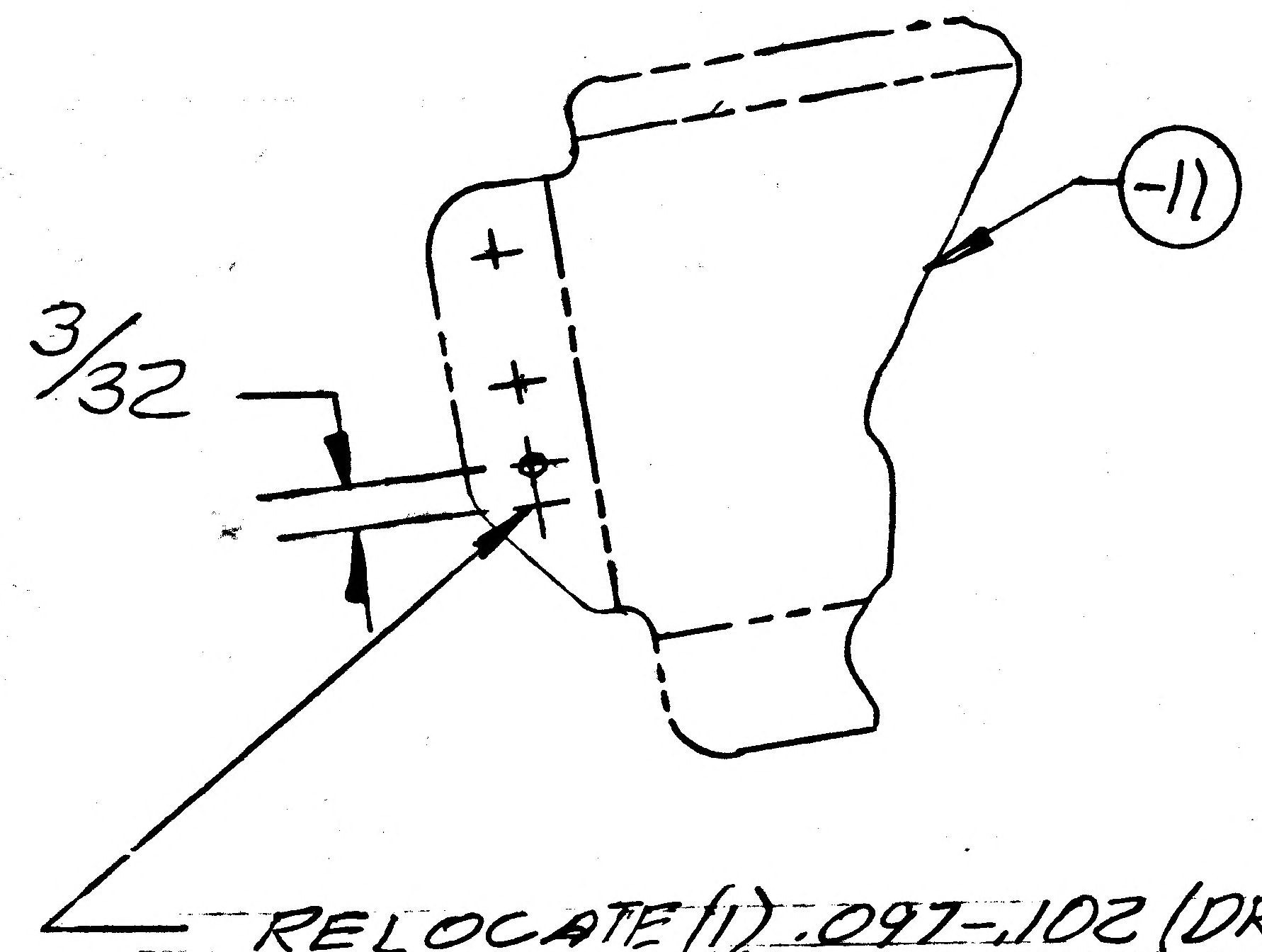
FOR PHOTO 1 REPRODUCTION

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18263 | EO NO. B1
CONTROL INFO NO. L 11-5-15275



RELEASED BY LIAISON

RELOCATE (1) .097-.102 (DRILL #40) HOLE AS SHOWN.

⌖ — NEW LOCATION.   * EXISTING HOLE MAY BE PLUGGED USING NAS1097AD3 CSK BOTH SIDES.

DETAIL SPEC REQ ☐   CL II ENGRG CHG ☑   CL I ENGRG CHG ☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE PROPER CLEARANCE	RELOCATED 1 HOLE ON -11	JL

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(3)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

PRIORITY: C

APPROVED BY	JaP			~	JF	JF	9wB	JRP
DATE	7/6/67			~	6-3-67	6-3-67	7/6/67	6/3/67
1	UDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

DRAWING TITLE	DRAWING NO.	EO NO.
BRACKET DES/STAGE He PRESS MOD.	LDW280-18263	B1

ISSUED BY LIAISON J. KOSLOSKI x3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
• CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18263 | EO NO. B2
CONTROL INFO NO. LDW280A7299

SHEET 1.00

IN MODEL BLOCK FOR -1 & -3 ADD:

LM MODEL	LDW280-23681 N/A	LTA-5 (15) MODULE	1 EA. REQD

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☒	CL I ENGRG CHG	☐	LCD 19-1032

REASON FOR EO: UPDATE OF LTA-5 TO ADD PARKER REDUCING VALVE-DESCENT MODULE

DESCRIPTION OF EO:

GAEC EO RELEASE: JK 6/7/7 5 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA5 (15)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REWORK	REQ SCRAP

APPROVED BY	R.B.	Jap			WH		Dam	
DATE	6/1/67	6/1/67			6/2/67		6/2/67	6/7/67
1	PROP	VD1	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: BRACKET-DESCENT STAGE He PRESS MODULE VALVE SUPPORT
DRAWING NO.: LDW280-18263
EO NO.: B2

ISSUED BY N. GRAUL x1471 SECTION PROPULSION GROUP NO. 270 PL 25

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 813
CONTROL INFO NO. LDW280B0727

FOR ALL DASH NO'S ON THE FOLLOWING DWGS REMOVE LTA-5(15) REQTS & ADD PD-2(09) EFF, N/A & QTY SAME AS ON LTA-5(15)

DRAWING NO. *	TITLE	CHANGE
LDW280-23681	SEE DWG	B6 ✓
LDW280-17831	↑	B3 ✓
LDW280-17832		B3 ✓
LDW280-17833		B3 ✓
LDW280-17834		B6 ✓
LDW280-17859		B4 ✓
LDW280-18262		B3 ✓
LDW280-18263		B3 ✓
LDW280M17716	↓	B2
LDW280M17524	SEE DWG	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2413

5

Ⓡ GAEC C EO RELEASE VC 12/11/?

REASON FOR EO: FLIGHT He MODULE REQD FOR FURTHER TESTS @ WSTF

DESCRIPTION OF EO: FOR * REMOVED LTA-5(15) EFF & ADDED PD-2(09) EFF

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-5(15)	
		PD-2(09)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

APPROVED BY				PSX		JGP	JDP
DATE	12/6/67			12-5-67	12/7/67	12/6/67	12-9-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 813

CDR 12/8/67
ISSUED BY G BARNES / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-18265

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280H52681	LM-15(45)	2
	LDW280H52681	LM-14(44)	2
	LDW280H52681	LM-13(43)	2
	LDW280H52681	LM-12(42)	2
	LDW280H52681	LM-11(41)	2
	LDW280H52681	LM-10(40)	2
	LDW280H52681	LM-9(39)	2
	LDW280H52681	LM-8(38)	2
	LDW280H52681	LM-7(37)	2
	LDW280H52681	LM-6(36)	2
	LDW280H52681	LM-5(35)	2
	LDW280H52681	LM-4(34)	2
	LDW280H52681	LM-3(33)	2
LM	LDW280H52681	LM-2(32)	2

PART NO. LDW280-18265-11

GAEC SCH NO. 55

WORK PACKAGE FUNCTION #110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO.	JS(001)		
207	MP14	3-28-7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT ☐
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE ☐
LCD19-1032

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J.BRODA 3/23/67	RELIABILITY	
LAYOUT BY	W.STEA 3/24/67		
CHECKED BY	D.FASS 3-23-67		
GRP. LEADER	3/24/67		
VEH-DES-INT	G. Pusateri 3/24/67		
STRUCTURES	3/24/67	PROJ ENGR	McCloughan 3/27/67
STRUCTURES	3/24	REL GROUP	3-27-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-HELIUM PRESSURIZATION
MODULE

SIZE B
CODE IDENT NO. 26512
LDW280-18265
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR - 3/24/67

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NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18265-11	E		WEB	AL ALLOY SH.	QQ-A-250/13	7075-T6	.010 × 10 × 16	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH ____________

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18265

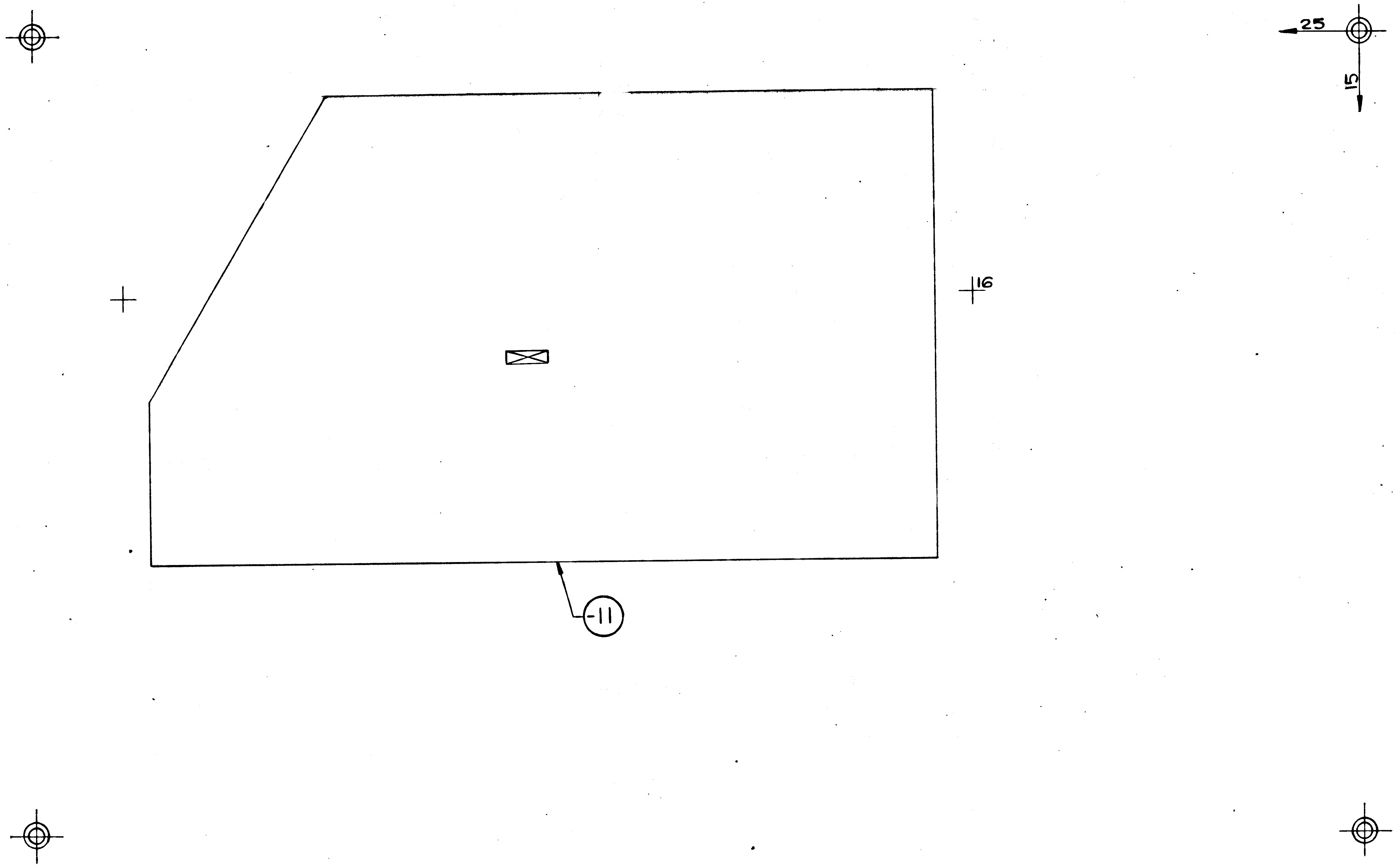
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
$\sqrt{125}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\sqrt{200}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL $\sqrt{}$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS $\pm\frac{1}{32}$	✓

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	D	26512	LDW280-18265
	SCALE FULL		SHEET 3.00

FOR PHOTO 1 REPRODUCTIO

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 812
CONTROL INFO NO. LDW280B0726

FOR ALL DASH NO^{s} ON THE FOLLOWING DWGS WHICH HAVE LM-2 EFF, ADD LTA-5(15) EFF, N/A & QTY SAME AS ON LM-2

	DRAWING NO *	TITLE	CHANGE
✓	LDW280H52681	SEE DWG	A5
✓	LDW280M17717	↑	A1
✓	LDW280M17718		A1
✓	LDW280M17719		A1
✓	LDW280H18264		A1
✓	LDW280-18265		A1
	LDW280-18266		A2
	LDW280-18267	↓	A1
	LDW280-18268	SEE DWG	A1

LFM

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2413

REASON FOR EO: FLIGHT He MODULE REQD FOR FURTHER TEST @ WSTF

DESCRIPTION OF EO: FOR * ADDED LTA-5(15) EFF

Ⓒ GAEC EO RELEASE 12/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 87	LTA-5(15)	

DRAWING CHANGE REQD	✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS	NOT REQD (REWORK / SCRAP)
APPROVED BY / DATE	—

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	12/5/67			12-5-67	12/7/67		12/5/67	12/6/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	812

CDR 12-8-67
ISSUED BY G. BARNES / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1032
CONTROL INFO NO. LDW280B4205

FOR THE FOLLOWING PARTS ADD DMSM (77) REQMTS WITH THE NOTED QUANTITIES FOR THE NOTED NEXT ASSY.

PART # (*)	QTY/MOD	NEXT ASSY	DWG TITLE	CHG NO.
LDW280M17717-11	2	LDW280H52681	SEE DWG	A2
LDW280-18266-11	2	↓	↓	A3
LDW280-18268-1 -3 -15 -17	2 2 6 2			A2
LDW280M17718-11	2			A2
LDW280M17719-11	2			A2
LDW280-18267-11 -13	2 2			A2
LDW280H18264-11	2			A2
LDW280-18265-11	4	↓		A2
LDW280H52681-1	2	LDW270-25310	↓	A8

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NAS 9-1100

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 2019 CCA667 PKG 2

REASON FOR EO: PROPULSION TESTS AT W.S.T.F.

DESCRIPTION OF EO: ON(*) ADDED DMSM (77) REQMTS

(5)
(R) GAEC EO RELEASE: JK 7/10/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DMSM (77)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK | SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				PST	WJH			
DATE	6/26/68			6-25-68	7/1/68		7/2/68	7/10/68
	V.D.I.							~~CONT~~

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1032

7-3-68
ISSUED BY G. HANSMANN X 8601B SECTION V.D.I. GROUP NO. 280 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1381
CONTROL INFO NO. LDW280B7425

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. ✳

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18223 ✓	B3	SEE DWG
-18224 ✓	B1	↑
-18225 ✓	A1	
-18236 ✓	C1	
-18238 ✓	A2	
-18265 ✓	A3	
-18266	A4	
-18267	A3	
-18268	A3	↓
LDW280-18271	A5	SEE DWG

✳ APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — ✳

GAEC EO RELEASE: 4/22/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	4/1/69			4-2-69	4/8/69		4/9/69	4/22/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1381

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1524
CONTROL INFO NO. LDW 280B 8108		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
LDW280-18466 ✓	SEE DWG	A6	
224 ✓		B2	
225 ✓		A2	
236 ✓		C2	
238 ✓		A3	
265 ✓		A4	
266		A5	
267		A4	
268		A4	
LDW280-18271	SEE DWG	A6	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 29

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SH 8-6-69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	7-29-69			7-31-69	8/2/69		8/8/69	8-9-69
✓		NOT REQ'D			VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~ Lauman

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1524

8-22-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280		EO NO. 1841
CONTROL INFO NO. LDW280B9925		

FOR THE DRAWINGS LISTED BELOW, DELETE LTA-11(23) REQUIREMENTS

DRAWING NUMBER *	DWG. TITLE	CHG. LTR.
LDW280H52681-3	SEE DWG.	B3
LDW280M17717-11	↑	A5
LDW280M17718-11		A5
LDW280M17719-11		A5
LDW280-18265-11		A5
LDW280-18267-11 LDW280-18267-13		A5
LDW280-18268-1,-3 LDW280-18268-15,-17	↓	A5
LDW280-18266-11	SEE DWG.	A6

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99	(5)

N FOR EO: HONEYCOMB ASSY (He MOT.) & DETAIL PARTS NOT REQUIRED FOR DYNAMIC TEST VEHICLE FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR *, DELETED LTA-11(23) REQUIREMENTS

GAEC EO RELEASE (R) VK 2/12/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	RS+						RS+	
DATE	2-9-70			2/9/70	2/10/70		2-10-70	2-12-70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CCCO~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE ABOVE	LE0280	1841

CDR 021670

ISSUED BY D. SHAPIRO/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18266

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280H52681	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
		LM-4 (34)	1
		LM-3 (33)	1
LM	LDW280H52681	LM-2 (32)	1
PART NO. LDW 280-18266-1		GAEC SCH NO. 55	

WORK PACKAGE FUNCTION #110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	~	GRUMMAN REL INFO			
LAST DASH NO. USED	-11	PRIM NO.	JS (001)		
		207	MP 14	3-31-7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE
LCD -1032

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	W. CONROY 3-23-67	RELIABILITY	
LAYOUT BY	W. STEA 3-24-67		
CHECKED BY	3-29-67		
GRP LDR	3/24/67		
VDI	3/24/67		
STRUCTURES	3/24/67	PROJ ENGR	D. A. McCloughan 3/27/67
STRUCTURES	3/24	REL GROUP	
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL ASSY
DESCENT STAGE - HELIUM
PRESSURIZATION MODULE

SIZE B CODE IDENT NO. 26512 LDW280-18266
SCALE NONE SHEET 1.00 OF 3

ENG 77.1 12-65

CDR: 3/24/67

01 NAS 9-1100

QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AR	NAS1097AD3	E		RIVET	STD PART						
1	NAS697C08	E		PLATE NUT	STD PART						
1	LDW280-18266-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 x 3 x 4	T6	88	
	LDW280-18266-1	E		CHANNEL ASSY					NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
T6	HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18266

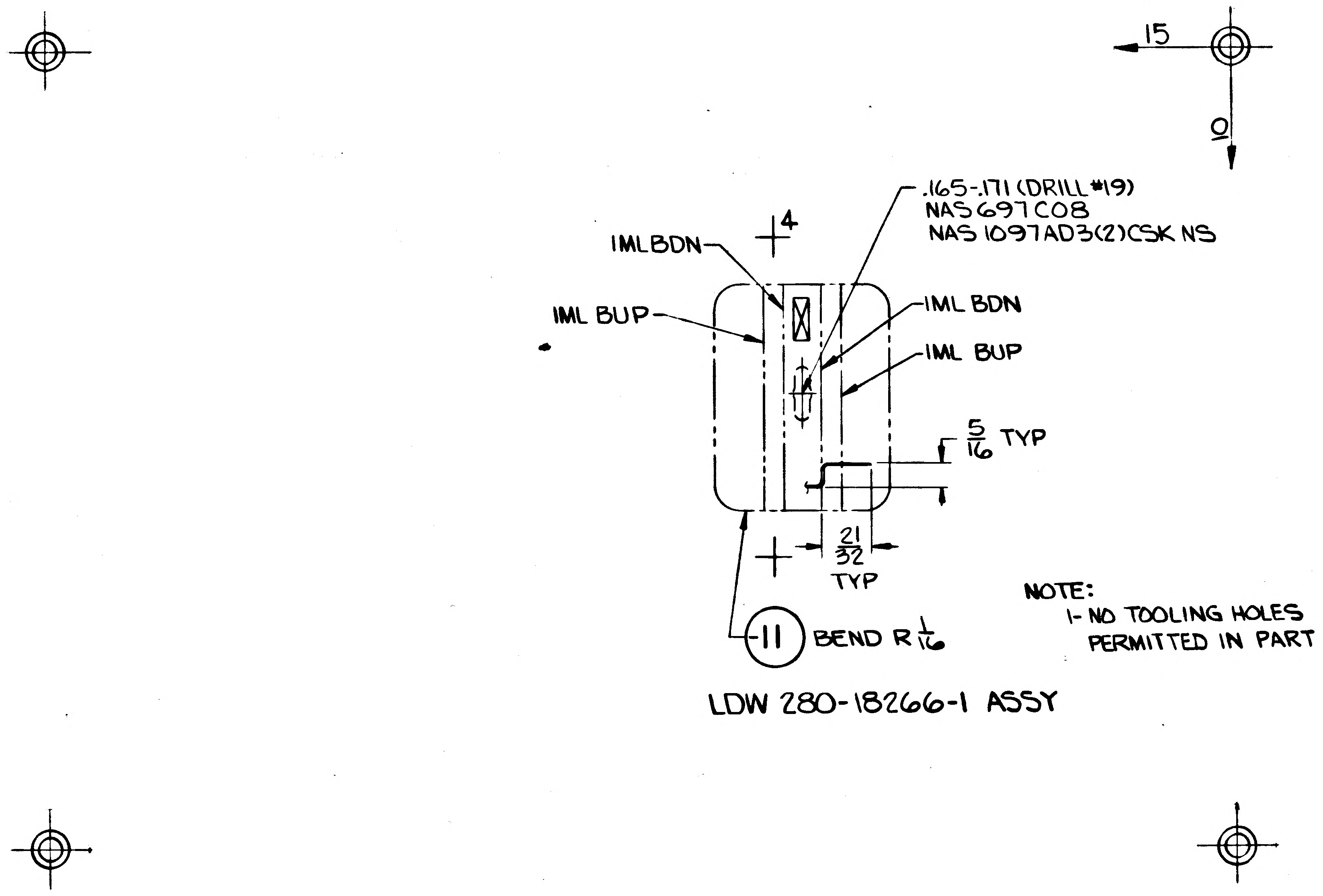
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100



LDW 280-18266-1 ASSY

NOTE:
1- NO TOOLING HOLES PERMITTED IN PART

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18266

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM: LM
SIZE: C
CODE IDENT NO.: 26512
LDW280-18266
SCALE: FULL
SHEET 3.00

FOR PHOTO 1 REPRODUCTION

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18266
EO NO. A1
CONTROL INFO NO. LM-2-4135

IN MODEL BLOCK FOR LM-4(34) THRU LM-15(45)
REPLACE -1 WITH -11

FOR REWORK OF EXISTING PARTS, FLUSH PLUG UNUSED HOLES WITH "AD" RIVET MATERIAL.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: HARDWARE TO BE LOCATED ON NEXT ASSEMBLY TO INSURE PROPER CLAMPING

DESCRIPTION OF EO: IN MOD/BLK, DELETED -1 & ADDED -11 FOR LM-4(34) THRU LM-15(45) EFFECTIVITY.

GAEC EO RELEASE: ② JK 0202

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				—				
DATE	11/11/67			—	11/2/67	11/2/67	11/11/67	11-7-67

PRIORITY: C
DRAWING TITLE: HELIUM PRESSURIZATION MODULE
DRAWING NO.: LDW280-18266
EO NO.: A1

ISSUED BY LIAISON J. MALONEY 11/1/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

1

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 812
CONTROL INFO NO. LDW280B0726

FOR ALL DASH NO^s ON THE FOLLOWING DWGS WHICH HAVE LM-2 EFF, ADD LTA-5(15) EFF, N/A & QTY SAME AS ON LM-2

DRAWING NO *	TITLE	CHANGE
✓ LDW280H52681	SEE DWG	A5
✓ LDW280M17717	↑	A1
✓ LDW280M17718		A1
✓ LDW280M17719		A1
✓ LDW280H18264		A1
✓ LDW280-18265		A1
✓ LDW280-18266		A2
LDW280-18267	↓	A1
LDW280-18268	SEE DWG	A1

LFM

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2413

REASON FOR EO: FLIGHT He MODULE REQD FOR FURTHER TEST @ WSTF

DESCRIPTION OF EO: FOR * ADDED LTA-5(15) EFF

GAEC EO RELEASE: 12/7/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 87	LTA-5(15)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REWORK | REQD SCRAP

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	12/5/67			12-5-67	12/7/67		12/5/67	12/6/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	812

CDR 12-8-67
ISSUED BY G. BARNES / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1032
CONTROL INFO NO. LDW280B4205

FOR THE FOLLOWING PARTS ADD DMSM (77) REQMTS WITH THE NOTED QUANTITIES FOR THE NOTED NEXT ASSY.

PART # (*)	QTY/MOD	NEXT ASSY	DWG TITLE	CHG NO.
LDW280M17717-11	2	LDW280H52681	SEE DWG	A2
LDW280-18266-11	2	↓	↓	A3
LDW280-18268-1 -3 -15 -17	2 2 6 2	↓	↓	A2
LDW280M17718-11	2	↓	↓	A2
LDW280M17719-11	2	↓	↓	A2
LDW280-18267-11 -13	2 2	↓	↓	A2
LDW280H18264-11	2	↓	↓	A2
LDW280-18265-11	4	↓	↓	A2
LDW280H52681-1	2	LDW270-25310	↓	A8

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NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2019 CCA667 PKG 2 (5)

REASON FOR EO: PROPULSION TESTS AT W.S.T.F.

DESCRIPTION OF EO: ON(*) ADDED DMSM (77) REQMTS

GAEC EO RELEASE: JK 7/10/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DMSM (77)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK / SCRAP
✓		NOT REQD

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY								
DATE	06/26/68			6-25-68	7/1/68		7/9/68	7/10/68
	V.D.I.							

PRIORITY C | DRAWING TITLE: SEE DWG | DRAWING NO. LEO 280 | EO NO. 1032

7-3-68
ISSUED BY G. HANSMANN X 8601B SECTION V.D.I. GROUP NO. 280 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1381
CONTROL INFO LDW280B7425

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18223 ✓	B3	SEE DWG
-18224 ✓	B1	
-18225 ✓	A1	
-18236 ✓	C1	
-18238 ✓	A2	
-18265 ✓	A3	
-18266 ✓	A4	
-18267	A3	
-18268	A3	
LDW280-18271	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/22/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
				PA	WH			
DATE	4/1/69			4-2-69	4/8/69		4/9/69	4/22/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1381

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O,

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1524
CONTROL INFO NO. LDW280B 8108

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18466	SEE DWG	A6
224		B2
225		A2
236		C2
238		A3
265		A4
266		A5
267		A4
268		A4
LDW280-18271	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 29

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SLB 8-6-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	PBT				N			Bauman
DATE	7-29-69			7/29/69	8/2/69		8/2/69	8-9-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1524

8-22-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1841
CONTROL INFO NO. LDW280B9925

FOR THE DRAWINGS LISTED BELOW, DELETE LTA-11(23) REQUIREMENTS

DRAWING NUMBER *	DWG. TITLE	CHG. LTR.
✓ LDW280H52681-3	SEE DWG.	B3
✓ LDW280M17717-11		A5
✓ LDW280M17718-11		A5
✓ LDW280M17719-11		A5
✓ LDW280-18265-11		A5
✓ LDW280-18267-11 LDW280-18267-13		A5
✓ LDW280-18268-1,-3 LDW280-18268-15,-17		A5
✓ LDW280-18266-11	SEE DWG.	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG99	(5)

REASON FOR EO: Honeycomb Assy (He Mod.) & DETAIL PARTS NOT REQUIRED FOR DYNAMIC TEST VEHICLE FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR *, DELETED LTA-11(23) REQUIREMENTS

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
APPROVED BY	RSA						RSA	JK
DATE	2-9-70			2/9/70	2/10/70		2-10-70	2-12-70

PRIORITY C | DRAWING TITLE SEE ABOVE | DRAWING NO. LE0280 | EO NO. 1841

CDR 021670
ISSUED BY D. SHAPIRO/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18267

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280H52681	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
		LM-3(33)	1 EA
LM	LDW280H52681	LM-2(32)	1 EA
PART NO. LDW 280-18267-11E-13		GAEC SCH NO. 55	

WORK PACKAGE FUNCTION 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	~	GRUMMAN REL^G INFO			
LAST DASH NO. USED	-13	PRIM NO.	15(001)		
		207	MP 14	3-25-7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE
LCD 19-1032

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	W. CONROY 3-23-67	RELIABILITY	
LAYOUT BY	W. STEA 3-23-67		
CHECKED BY	M 3·22·67		
GRP LDR	3/24/67		
STRUCTURES	3/24		
STRUCTURES	3/24/67	PROJ ENGR	D. A. McClaughan 3/27/67
VDI	3/24/67	REL GROUP	3/27/67
WEIGHTS			

②
GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TEE
DESCENT STAGE - HELIUM
PRESSURIZATION MODULE

SIZE B
CODE IDENT NO. 26512
LDW280-18267
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 3/24/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18267-13	E		TEE	AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE#62248 × 1½	NONE	88	
	LDW280-18267-11	E		TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE#22078 × 1½	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18267

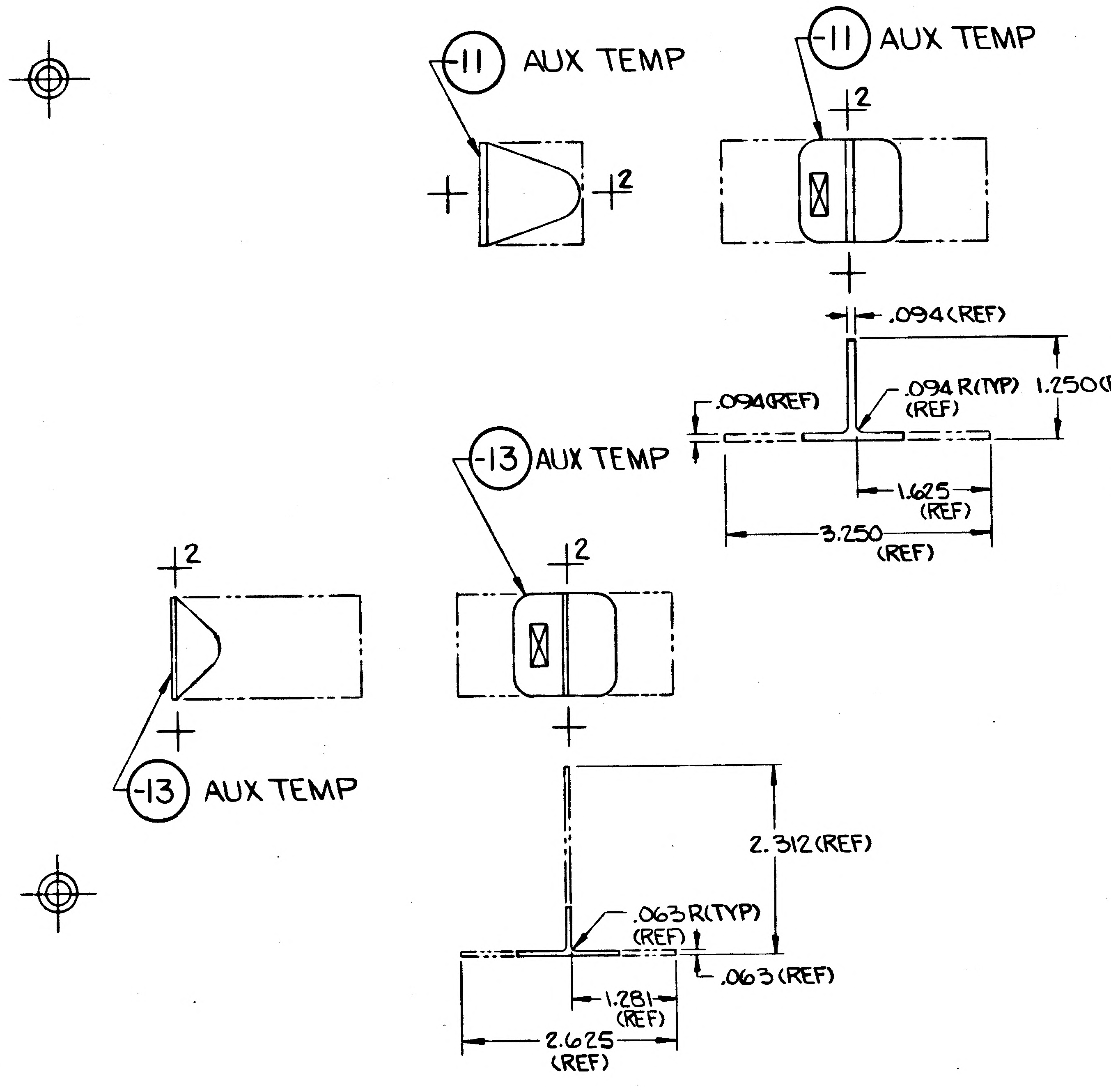
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100



NOTE:
1-NO TOOLING HOLES PERMITTED IN PARTS

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS $\pm \frac{1}{32}$	√

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE C	CODE IDENT NO. 26512	LDW280-18267
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO 1 REPRODUCTION

LDW280-18267

LDW280-18267

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 812
CONTROL INFO NO. LDW280B0726

FOR ALL DASH NOS ON THE FOLLOWING DWGS WHICH HAVE LM-2 EFF, ADD LTA-5(15) EFF, N/A & QTY SAME AS ON LM-2

DRAWING NO *	TITLE	CHANGE
✓ LDW280H52681	SEE DWG	A5
✓ LDW280M17717	↑	A1
✓ LDW280M17718		A1
✓ LDW280M17719		A1
✓ LDW280H18264		A1
✓ LDW280-18265		A1
✓ LDW280-18266		A2
✓ LDW280-18267	↓	A1
LDW280-18268	SEE DWG	A1

LFM

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2413

REASON FOR EO: FLIGHT He MODULE REQD FOR FURTHER TEST @ WSTF

DESCRIPTION OF EO: FOR * ADDED LTA-5(15) EFF

GAEC EO RELEASE: 12/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 87	LTA-5(15)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	12/5/67			12-5-67	12/7/67		12/5/67	12/6/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	812

CDR 12-8-67
ISSUED BY G. BARNES / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1032
CONTROL INFO NO. LDW280B4205

FOR THE FOLLOWING PARTS ADD DMSM (77) REQMTS WITH THE NOTED QUANTITIES FOR THE NOTED NEXT ASSY.

PART # (*)	QTY/MOD	NEXT ASSY	DWG TITLE	CHG NO.
LDW280M17717-11	2	LDW280H52681	SEE DWG	A2
LDW280-18266-11	2	↓	↓	A3
LDW280-18268-1 -3 -15 -17	2 2 6 2			A2
LDW280M17718-11	2			A2
LDW280M17719-11	2			A2
LDW280-18267-11 -13	2 2			A2
LDW280H18264-11	2			A2
LDW280-18265-11	4			A2
LDW280H52681-1	2	LDW270-25310		A8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2019 CCA667 PKG 2

REASON FOR EO: PROPULSION TESTS AT W.S.T.F.

DESCRIPTION OF EO: ON(*) ADDED DMSM (77) REQMTS

(R) (5) GAEC EO RELEASE: JK 7/10/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DMSM (77)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY				BST	WJH			
DATE	6/26/68			6-25-68	7/1/68	7/9/68	7/10/68	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1032

7-3-68
ISSUED BY G. HANSMANN X 8601B
SECTION V.D.I.
GROUP NO. 280
PL 25

01
NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1381
CONTROL INFO NO. LDW280B7425

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18223	✓	B3	SEE DWG
-18224	✓	B1	
-18225	✓	A1	
-18236	✓	C1	
-18238	✓	A2	
-18265	✓	A3	
-18266	✓	A4	
-18267	✓	A3	
-18268		A3	
LDW280-18271		A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF. FROM —*

GAEC EO RELEASE: 4/22/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY				PBF	WH			
DATE	4/1/69			4-2-69	4/8/69		4/9/69	4/22/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO.: 1381

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 Pt 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O,

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 22.1 REV 3-65

[redacted] LEO 280		EO NO. 1524
CONTROL INFO NO. LDW 280B 8108		

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18466	SEE DWG	A6
224		B2
225		A2
236		C2
238		A3
265		A4
266		A5
267		A4
268		A4
LDW280-18271	SEE DWG	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 29

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQMTS	S.R. 8-6-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY								
✓ REVISE DWG / RECORD EO	NOT REQ'D REWORK / SCRAP	DATE	7-29-69			7-29-69	8/1/69		8/1/69	8-9-69
			VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

Approved by: PBT; N; Bauman

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1524

8-22-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1841
CONTROL INFO NO. LDW280B9925

FOR THE DRAWINGS LISTED BELOW, DELETE LTA-11(23) REQUIREMENTS

	DRAWING NUMBER *	DWG.TITLE	CHG.LTR.
✓	LDW280H52681-3	SEE DWG.	B3
✓	LDW280M17717-11	↕	A5
✓	LDW280M17718-11		A5
✓	LDW280M17719-11		A5
✓	LDW280-18265-11		A5
✓	LDW280-18267-11 LDW280-18267-13		A5
	LDW280-18268-1,-3 LDW280-18268-15,-17		A5
	LDW280-18266-11	SEE DWG.	A6

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 3890 PKG99 (5)

REASON FOR EO: Honeycomb Assy (He Mot.) & DETAIL PARTS NOT REQUIRED FOR DYNAMIC TEST VEHICLE FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR *, DELETED LTA-11(23) REQUIREMENTS

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ | SCRAP ✓

APPROVED BY	RSt							RSt	
DATE	2-9-70			2/9/70	2/11/70			2-10-70	2-12-70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG		PROJ ENGRG	~~CCO~~

GAEC EO RELEASE (R) VK 2/13/70

PRIORITY C | DRAWING TITLE SEE ABOVE | DRAWING NO. LE0280 | EO NO. 1841

CDR 021670

ISSUED BY D.SHAPIRO/G.HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18268

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280H52681	LM-15(45)	1
		LM-14 (41)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11 (41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(34)	1
		LM-4(34)	1
		LM-3(33)	1
LM	LDW280H52681	LM-2(32)	1
PART NO. LDW280-18268-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280H52681	LM-15(45)	3
		LM-14-(44)	3
		LM-13 (43)	3
		LM-12(42)	3
		LM-11 (41)	3
		LM-10 (40)	3
		LM-9 (39)	3
		LM-8(38)	3
		LM-7(37)	3
		LM-6(36)	3
		LM-5(35)	3
		LM-4 (34)	3
		LM-3 (33)	3
LM	LDW280H52681	LM-2(32)	3
PART NO. LDW280-18268-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280H52631	LM-3(33)	1 EA
LM	LDW280H52681	LM-2(32)	1 EA
PART NO. LDW280-18268-1¢-3		GAEC SCH NO. 55	

WORK PACKAGE FUNCTION 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	~	GRUMMAN REL INFO			
LAST DASH NO. USED	-17	PRIM NO.	J5(001)		
		207	MP 14	3-28-7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	✓
CLASS I ENGRG CHANGE	
LCD 19-1032	

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	W.CONROY 3-22-67	RELIABILITY	
LAYOUT BY	W. STEA 3-24-67		
CHECKED BY	D.FASS 3-23-67		
GRP LDR	3/24/67		
IDI	J. Pusateri 3/24/67		
STRUCTURES	3/24/67	PROJ ENGR	D.A. McLaughlin 3/27/67
STRUCTURES	3/24	REL GROUP	3/27/67
WEIGHTS			

②
GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET ASSY
DESCENT STAGE- HELIUM
PRESSURIZATION MODULE

SIZE	CODE IDENT NO.	
B	26512	LDW280-18268
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

COR = 3/24/67

01

NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		MS20470AD4	E		RIVET	STD PART						
		LDW280-18268-17	E		BRACKET	AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE NO. 22637 x 15/8	NONE	88	
		-15				AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE NO. 22637 x 15/8	NONE	88	
1		-13				AL ALLOY SH	QQ-A-250/12	7075	.032 x 5 x 8	T6	88	
	1	-11			BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.032 x 5 x 7	T6	88	
		-3			BRACKET ASSY					NONE	NONE	
		LDW280-18268-1	E		BRACKET ASSY					NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						38	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18268

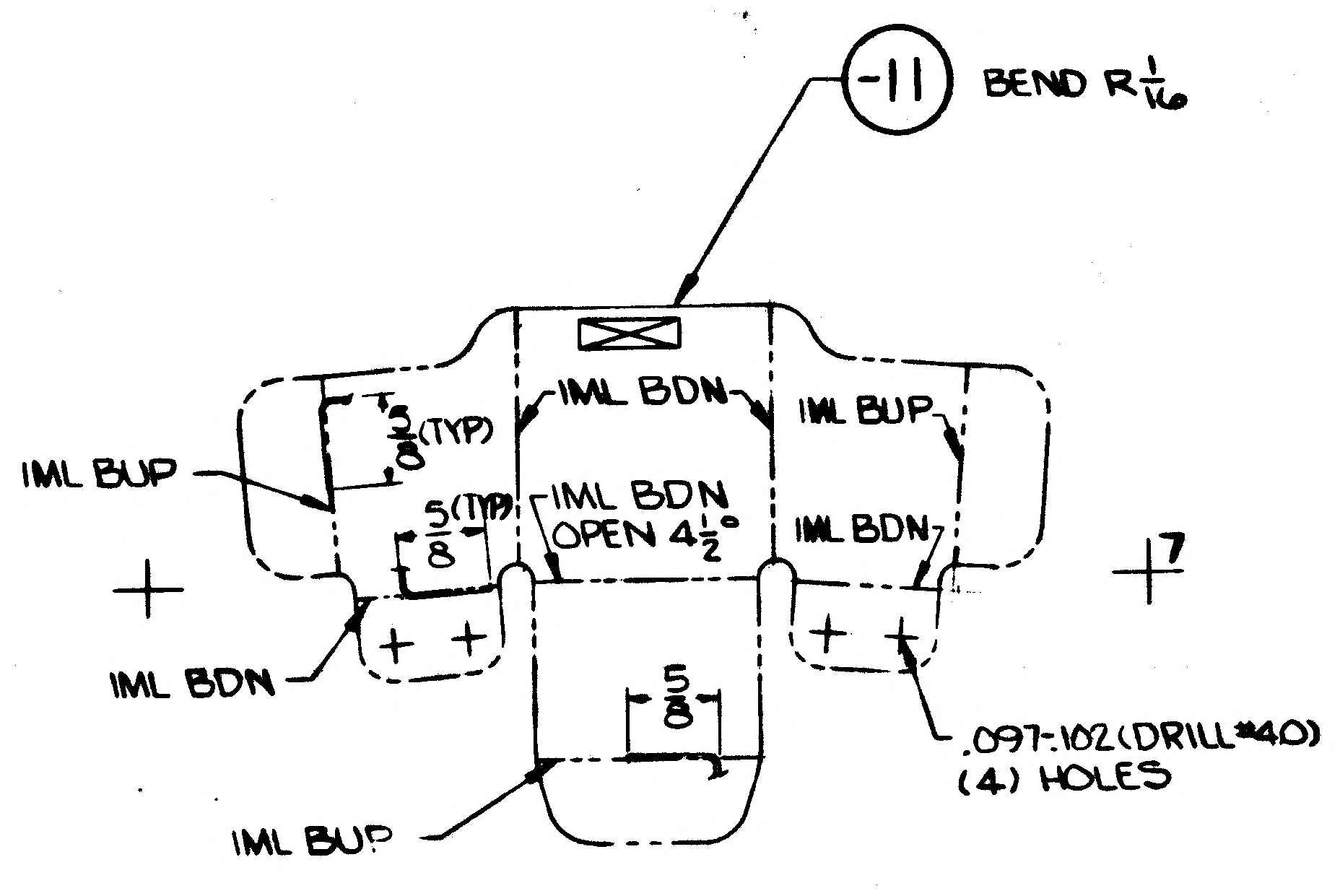
SCALE NONE

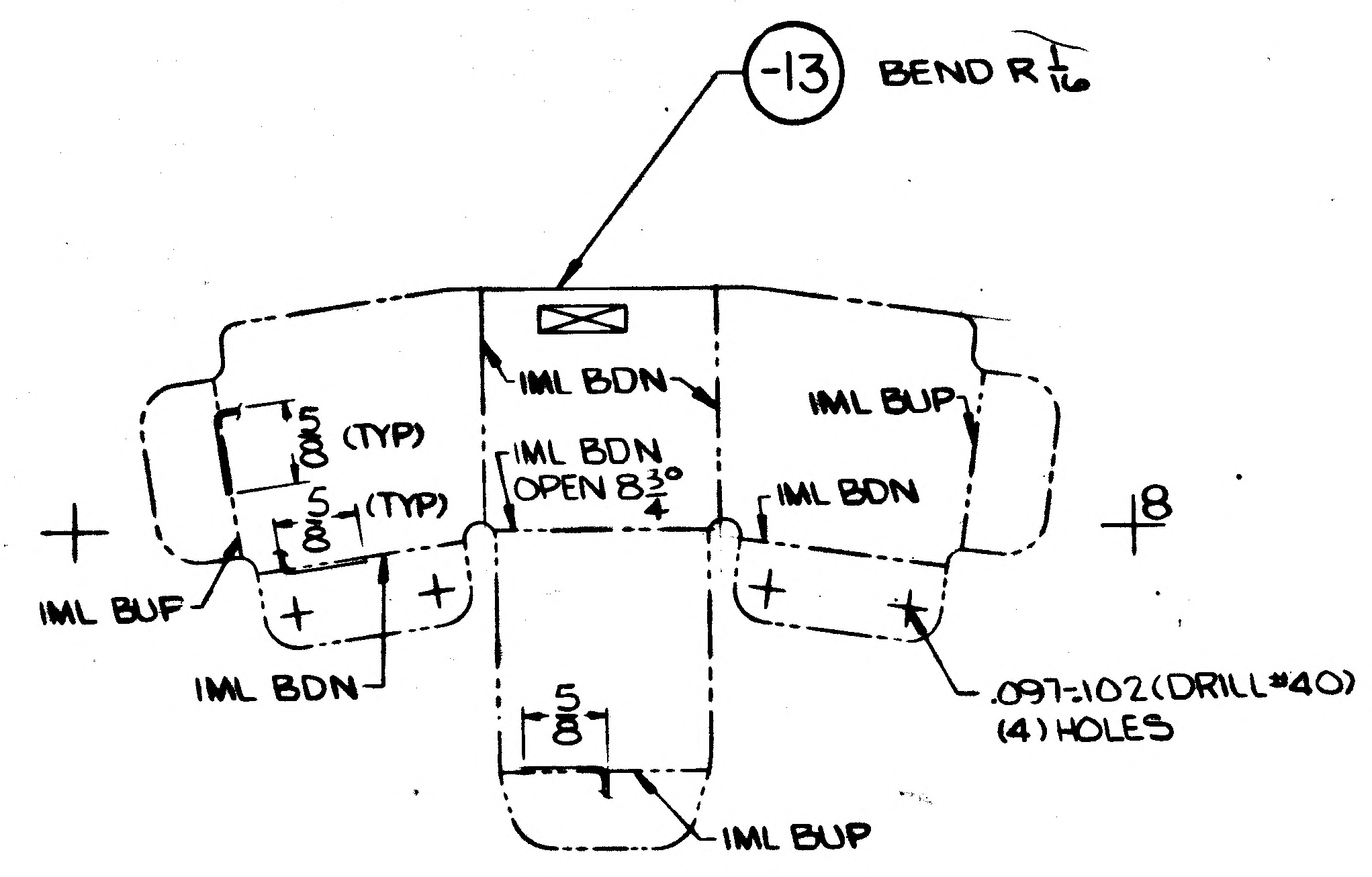
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100


-11
BEND R 1/16
IML BUP
5/8 (TYP)
5/8 (TYP)
IML BDN
IML BDN OPEN 4½°
IML BUP
IML BDN
7
IML BDN
5/8
.097-.102 (DRILL #40) (4) HOLES
IML BUP

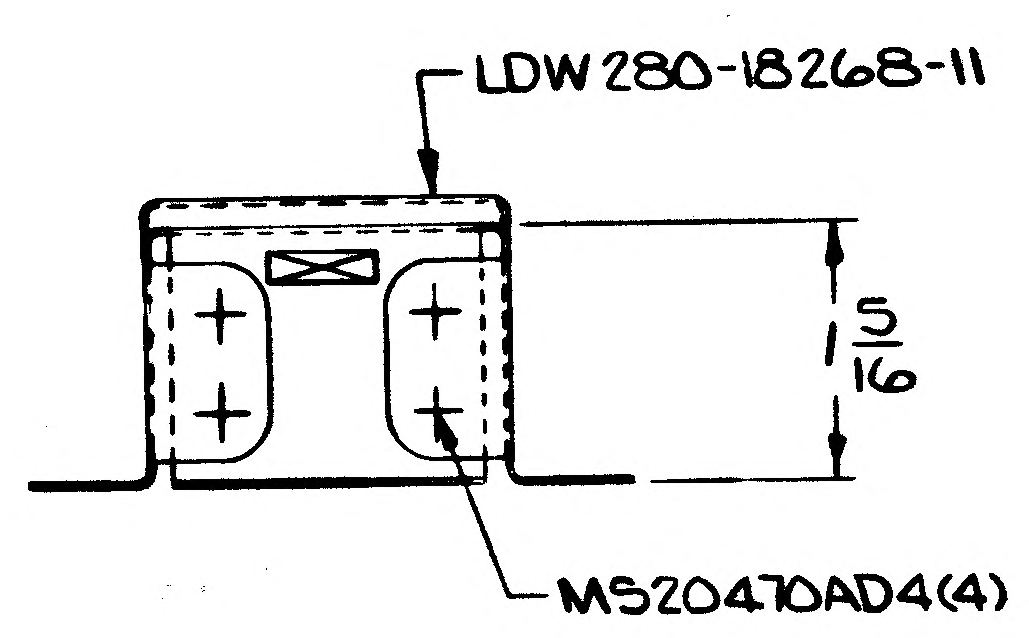

-13
BEND R 1/16
5/8 (TYP)
5/8 (TYP)
IML BDN
IML BDN OPEN 8¾°
IML BUP
IML BDN
8
IML BUF
IML BDN
5/8
.097-.102 (DRILL #40) (4) HOLES
IML BUP

NOTE:
1- NO TOOLING HOLES PERMITTED IN PARTS
2-INSTALL FASTENERS PER LSP 14-15302

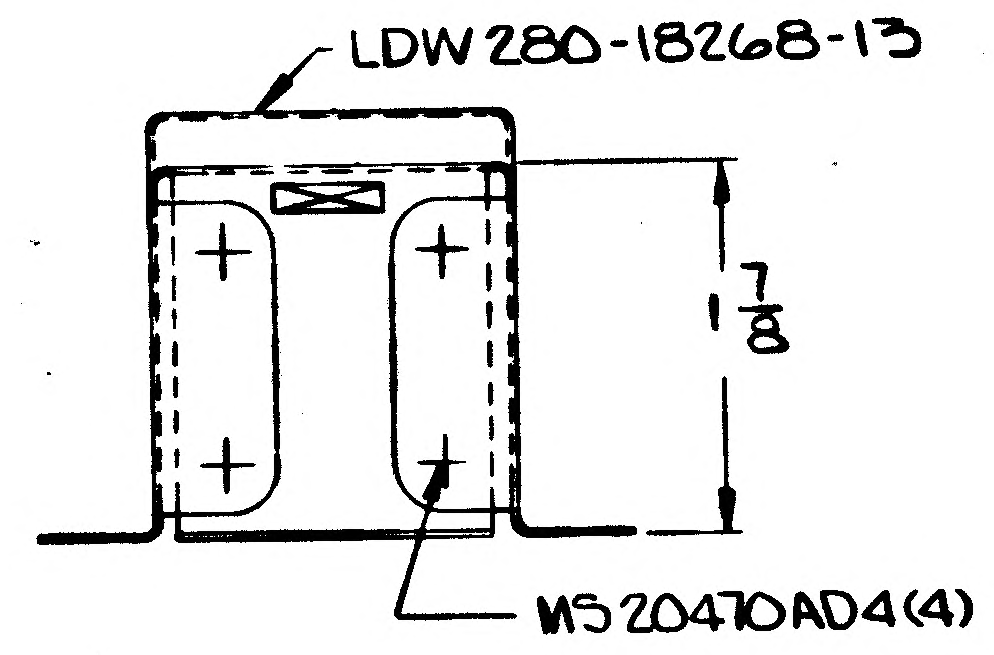
MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

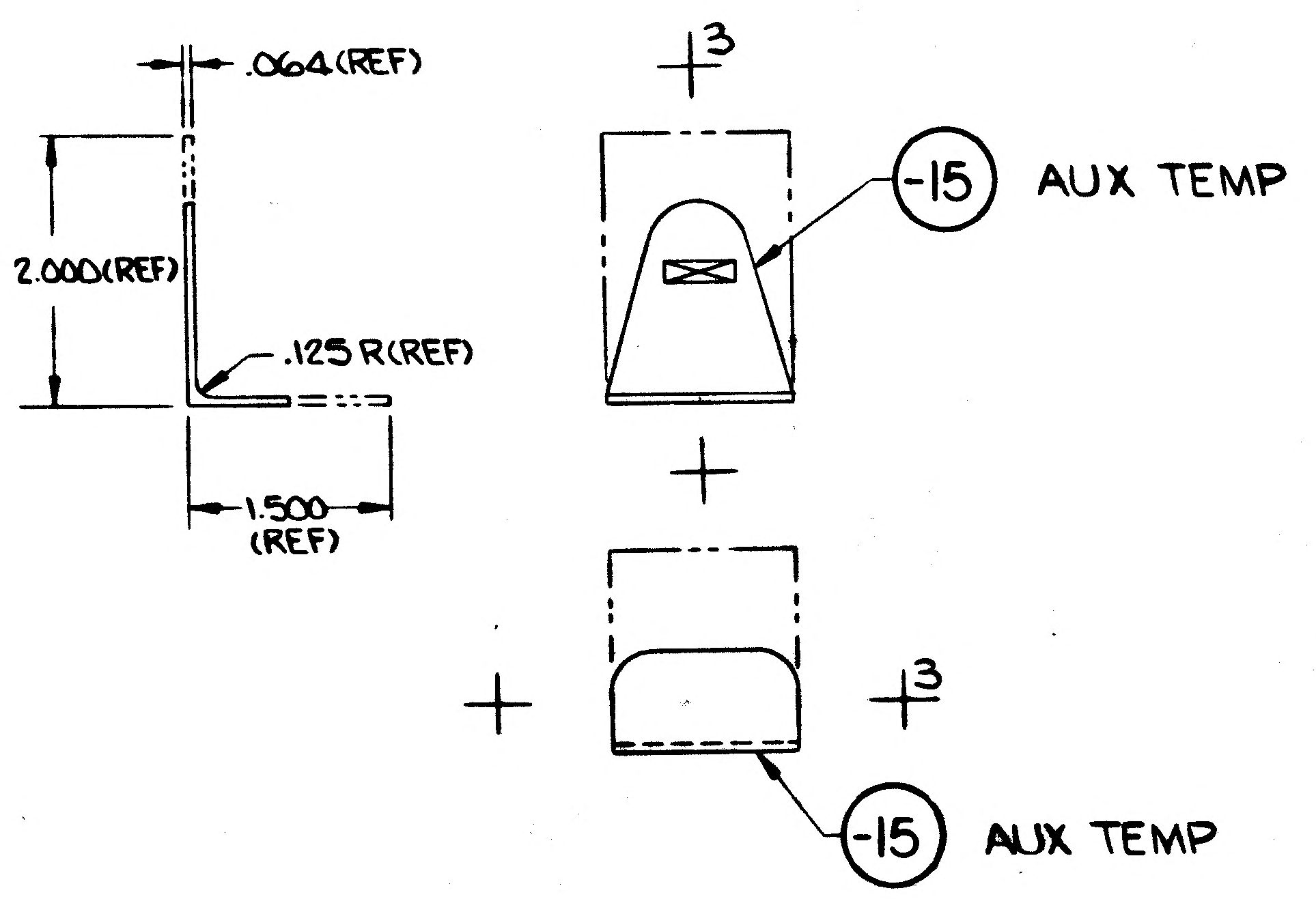
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓


LDW 280-18268-11
5/16
MS20470AD4(4)

LDW 280-18268-1 ASSY


LDW 280-18268-13
1 7/8
MS20470AD4(4)

LDW 280-18268-3 ASSY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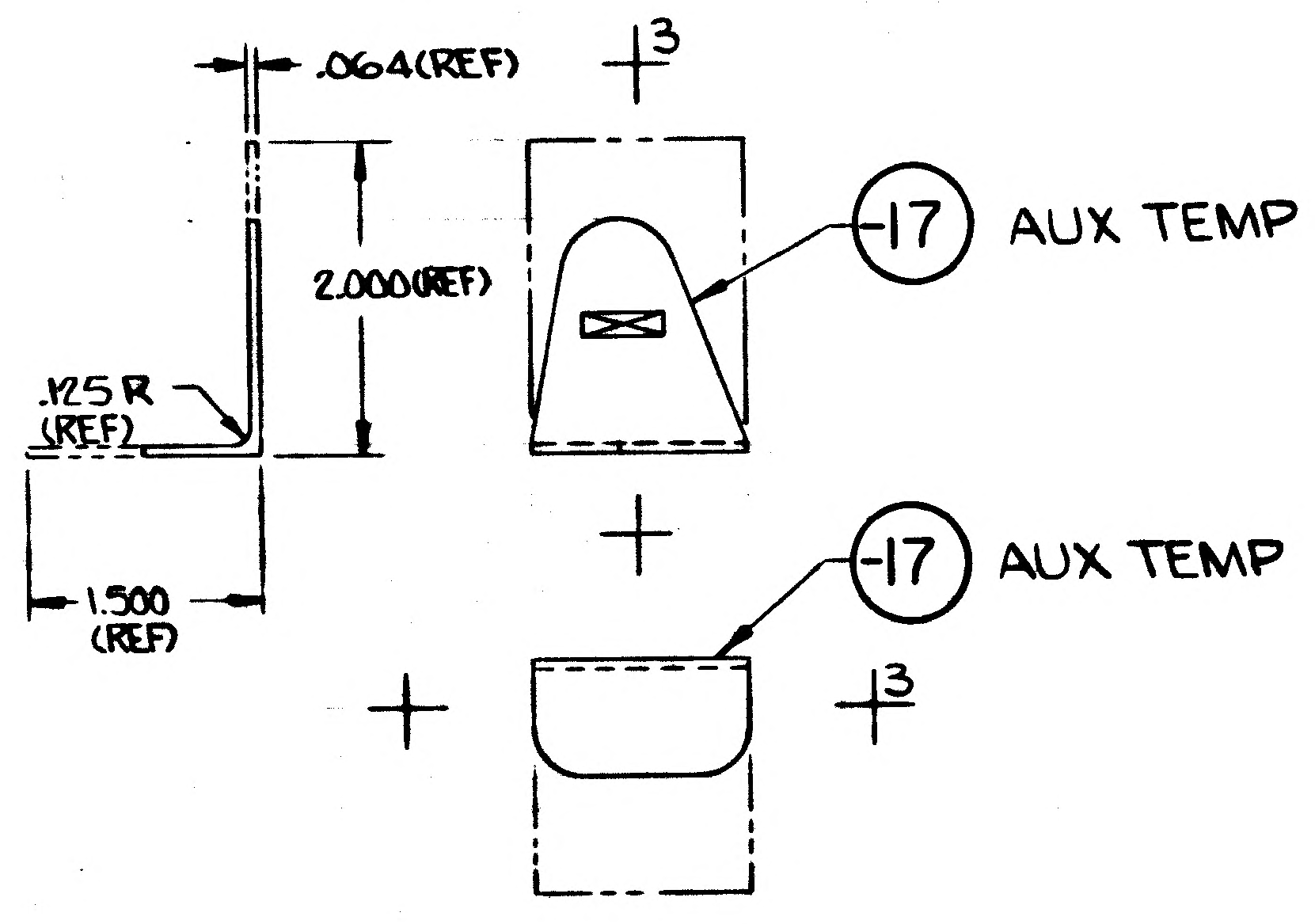
.125 R(REF)
1.500 (REF)
3
-15
AUX TEMP
3
-15
AUX TEMP


.064(REF)
2.000(REF)
.125 R (REF)
1.500 (REF)
3
-17
AUX TEMP
-17
AUX TEMP
3

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE E	CODE IDENT NO. 26512	LDW280-18268
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO 1 REPRODUCTION

LDW280-18268

1

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 812
CONTROL INFO NO. LDW280B0726

FOR ALL DASH NO'S ON THE FOLLOWING DWGS WHICH HAVE LM-2 EFF, ADD LTA-5(15) EFF, N/A & QTY SAME AS ON LM-2

DRAWING NO *	TITLE	CHANGE
✓ LDW280H52681	SEE DWG	A5
✓ LDW280M17717		A1
✓ LDW280M17718		A1
✓ LDW280M17719		A1
✓ LDW280H18264		A1
✓ LDW280-18265		A1
✓ LDW280-18266		A2
✓ LDW280-18267		A1
✓ LDW280-18268	SEE DWG	A1

LFM

5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2413

REASON FOR EO: FLIGHT He MODULE REQD FOR FURTHER TEST @ WSTF

DESCRIPTION OF EO: FOR * ADDED LTA-5(15) EFF

GAEC EO RELEASE: 12/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 87	LTA-5(15)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD
APPROVED BY — DATE: —

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	12/5/67			12-5-67	12/7/67		12/5/67	12/6/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 812

CDR 12-8-67
ISSUED BY G. BARNES / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1032
CONTROL INFO NO. LDW280B4205

FOR THE FOLLOWING PARTS ADD DMSM (77) REQMTS WITH THE NOTED QUANTITIES FOR THE NOTED NEXT ASSY.

PART # (*)	QTY/MOD	NEXT ASSY	DWG TITLE	CHG NO.
LDW280M17717-11	2	LDW280H52681	SEE DWG	A2
LDW280-18266-11	2			A3
LDW280-18268-1 -3 -15 -17	2 2 6 2			A2
LDW280M17718-11	2			A2
LDW280H17719-11	2			A2
LDW280-18267-11 -13	2 2			A2
LDW280H18264-11	2			A2
LDW280-18265-11	4			A2
LDW280H52681-1	2	LDW270-25310		A8

01
NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2019 CCA667 PKG 2

REASON FOR EO: PROPULSION TESTS AT W.S.T.F.

DESCRIPTION OF EO: ON(*) ADDED DMSM (77) REQMTS

GAEC (5) EO RELEASE: JK 7/10/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LH		DMSM (77)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	6/26/68			6-?-68	7/1/68		7/2/68	7/10/68

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1032

7-3-68 ISSUED BY G. HANSMANN X 8601B SECTION V.D.I. GROUP NO. 280 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 EO NO. 1381
CONTROL INFO NO. LDW280B7425

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18223	✓	B3	SEE DWG
-18224	✓	B1	↑
-18225	✓	A1	
-18236	✓	C1	
-18238	✓	A2	
-18265	✓	A3	
-18266	✓	A4	
-18267	✓	A3	
-18268	✓	A3	↓
LDW280-18271		A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: SK 4/22/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY					RSA	WH		JP	
DATE	4/1/69				4-2-69	4/8/69		4/9/69	4/21/69
	VDI	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1381

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

[redacted] LEO 280		EO NO. 1524
CONTROL INFO NO. LDW200B 8108		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18466 ✓	SEE DWG	A6
224 ✓		B2
225 ✓		A2
236 ✓		C2
238 ✓		A3
265 ✓		A4
266 ✓		A5
267 ✓		A4
268 ✓		A4
LDW280-18271	SEE DWG	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 29

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQM'TS	S&B 8-6-69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY	PBT				N			Bauman
✓ REVISE DWG / RECORD EO	NOT REQ'D REWORK / SCRAP	DATE	7-29-69			7-?-69	8/2/69		8/?/69	8-9-69
			VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1524

8-22-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1841
CONTROL INFO NO. LDW280B9925

FOR THE DRAWINGS LISTED BELOW, DELETE LTA-11(23) REQUIREMENTS

DRAWING NUMBER *	DWG. TITLE	CHG. LTR.
✓ LDW280H52681-3	SEE DWG.	B3
✓ LDW280M17717-11	↑	A5
✓ LDW280M17718-11		A5
✓ LDW280M17719-11		A5
✓ LDW280-18265-11		A5
✓ LDW280-18267-11 LDW280-18267-13		A5
✓ LDW280-18268-1,-3 LDW280-18268-15,-17	↓	A5
LDW280-18266-11	SEE DWG.	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG99

(5)

REASON FOR EO: HONEYCOMB ASSY (He MOD.) & DETAIL PARTS NOT REQUIRED FOR DYNAMIC TEST VEHICLE FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR *, DELETED LTA-11(23) REQUIREMENTS

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
APPROVED BY	RSF						RSF	
DATE	2-9-70			2/9/70	2/11/70		2-10-70	2-12-70
	VDI							

PRIORITY C
DRAWING TITLE: SEE ABOVE
DRAWING NO. LE0280
EO NO. 1841

CDR 021670
ISSUED BY D. SHAPIRO/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18271

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52574	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
		LM-4 (34)	1 EA
		LM-3 (33)	1 EA
LM	LDW280-52574	LM-2 (32)	1 EA

PART NO. LDW280-18271-11,-12,-13,-14,-15,-17&-19
GAEC SCH NO. 52-

WORK PKG FUNCTION 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				

LAST SECT LTR USED
LAST DASH NO. USED -19

GRUMMAN REL INFO
PRIM NO. 207 | JS(001) | MP14 | 3-28-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY A SCHMADTKE 3-14-67
RELIABILITY
LAYOUT BY R.CLARK
CHECKED BY M 3-15-67
GR LEADER 3/21/67
VDI DES INT J. Luccatori 3/21/67
STRUCTURES 3/21/67
STRUCTURES FES 3/23
PROJ ENGR J. A McClaughan 3/27/67
REL GROUP 3/28/67
WEIGHTS

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE - LANDING RADAR
REFLECTOR SUPPORT TRUSS

SIZE B
CODE IDENT NO. 26512
LDW280-18271
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 3-20-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18271-19	E		ANGLE	TITANIUM SH	MIL-T-9046	6Al-4V	.030 x 17 x 24	NONE	NONE	
	↕ -17	↕		↕	↕	↕	↕	.030 x 17 x 24	↕	↕	
	↕ -15	↕		↕	↕	↕	↕	.030 x 4 x 16	↕	↕	
	↕ -14	↕		↕	↕	↕	↕	.030 x 4 x 12	↕	↕	
	↕ -13	↕		↕	↕	↕	↕	.030 x 4 x 12	↕	↕	
	↕ -12	↕		↕	↕	↕	↕	.030 x 6 x 20	↕	↕	
	LDW280-18271-11	E		ANGLE	TITANIUM SH	MIL-T-9046	6Al-4V	.030 x 6 x 20	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18271

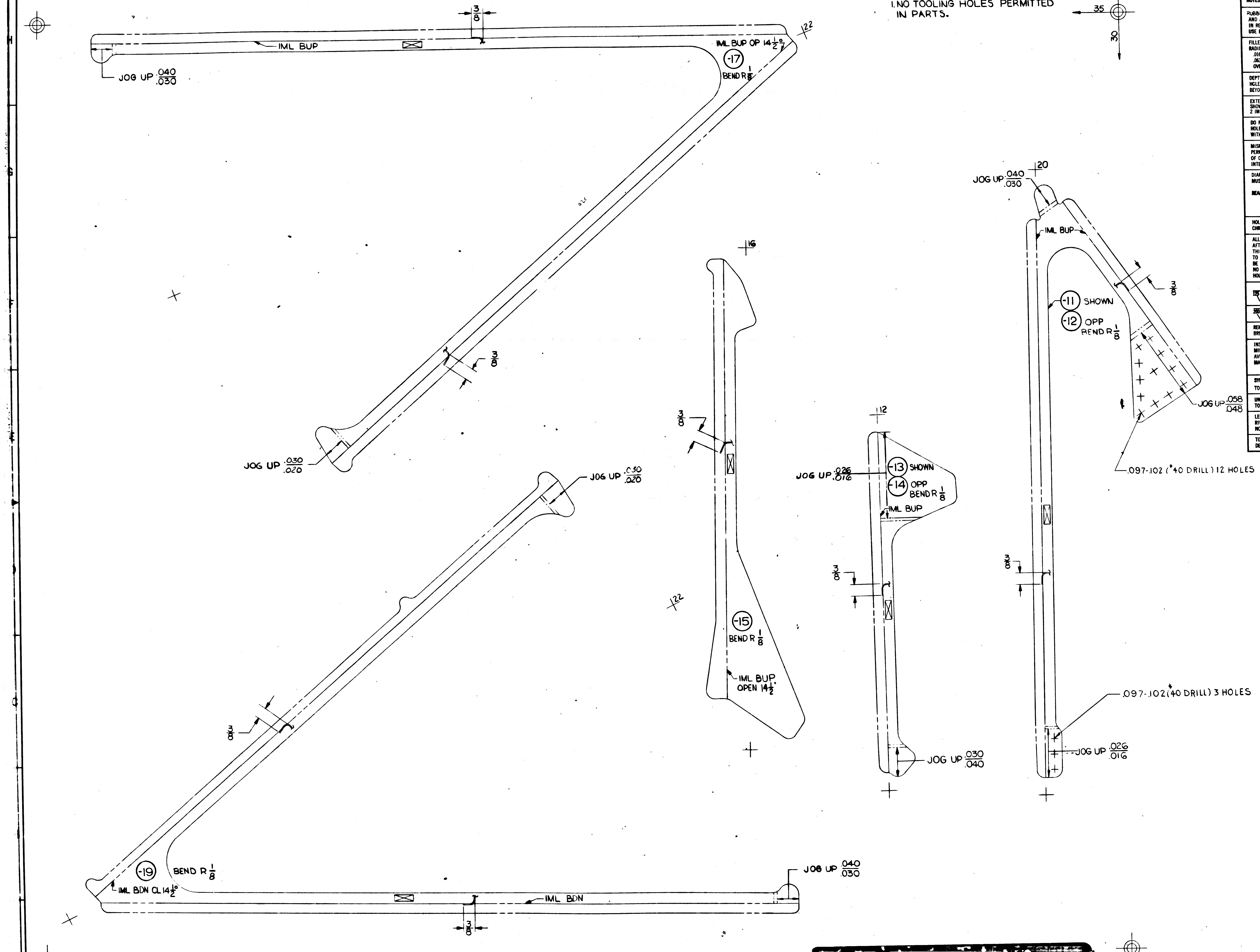
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01 NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



35
30
$\frac{3}{8}$
IML BUP
IML BUP OP $14\frac{1}{2}$°
-17
BEND R $\frac{1}{8}$
22
JOG UP $\frac{.040}{.030}$
JOG UP $\frac{.030}{.020}$
JOG UP $\frac{.030}{.020}$
16
$\frac{3}{8}$
-15
BEND R $\frac{1}{8}$
IML BUP OPEN $14\frac{1}{2}$°
22
12
JOG UP $\frac{.026}{.016}$
-13 SHOWN
-14 OPP BEND R $\frac{1}{8}$
IML BUP
JOG UP $\frac{.030}{.040}$
JOG UP $\frac{.040}{.030}$
20
IML BUP
-11 SHOWN
-12 OPP BEND R $\frac{1}{8}$
JOG UP $\frac{.058}{.048}$
.097-.102 (#40 DRILL) 12 HOLES
.097-.102 (#40 DRILL) 3 HOLES
JOG UP $\frac{.026}{.016}$
-19
BEND R $\frac{1}{8}$
IML BDN CL $14\frac{1}{2}$°
IML BDN
JOG UP $\frac{.040}{.030}$

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	E	26512	LDW280-18271
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

R 42608

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18271
EO NO. A1
CONTROL INFO NO. LDW280A6197

IN M/B FOR -11 THRU -19, ADD QUAL. TEST (70) EFF, SAME QUAN & N/A AS LM-15.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 809 5

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE
PARTS REQD FOR QUAL TEST (RECP 655) LCD 809	ADDED QUAL. TEST EFF. TO -11 THRU -19	JK 4/5/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		QUAL. TEST (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT REQD	
REVISE DWG	RECORD EO	REWORK	SCRAP

	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY							RMc Ⓦ	
DATE	4/3/67			4/3/67	4/4/67		4-4-67	4 5 67
5								

PRIORITY C
DRAWING TITLE ANGLE
DRAWING NO. LDW280-18271
EO NO. A1

ISSUED BY R.WINK/J. STRAKOSCH SECTION VEH. DES. INT. GROUP NO. 335 PL 25

AP

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-18271 | EO NO. A2
CONTROL INFO NO. LM-2-3546

IN F/D & B/M

DELETE -15, ADD -21:

-21 IDENTICAL TO -15 EXCEPT IML BUP OPEN 14 1/2°
SHOULD BE IML BDN OPEN 14 1/2°.

DELETE -19, ADD -23:

-23 IDENTICAL TO -19 EXCEPT JOG UP $\frac{.040}{.030}$ (2 PLACES)
SHOULD BE JOG DN $\frac{.040}{.030}$.

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		2

REASON FOR EO: INCORRECT BENDS PREVENT PARTS FROM MATING.

DESCRIPTION OF EO: IN F/D & B/M: ADDED -21 & -23 DELETED -15 & -19.

GAEC EO RELEASE: C JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
				APPROVED BY	gap			~	MS	Ctf	DAME	
✓			✓	DATE	7/6/67			~	5/2/67	5/1/67	5-5-67	5-2-67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C2	ANGLE D/S - LANDING RADAR - REFLECTOR SPT	LDW280-18271	A2

ISSUED BY LIAISON G. MARTELL x3604 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18271
EO NO. A3
CONTROL INFO NO. LM-2-3567

THIS IS A REVISION OF EO A2

IN F/D & B/M:

DELETE -19 ADD -23:
-23 IDENTICAL TO -19 EXCEPT JOG UP $\frac{.040}{.030}$ SHOULD BE JOG DN $\frac{.040}{.030}$ AND JOG UP $\frac{.030}{.020}$ SHOULD BE JOG DN $\frac{.030}{.020}$.

(WAS)
-23 IDENTICAL TO -19 EXCEPT JOG UP $\frac{.040}{.030}$ (2 PLACES) SHOULD BE JOG DN $\frac{.040}{.030}$

ADD QUAL TEST EFFECTIVITY TO EO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	2

REASON FOR EO: INCORRECT BENDS PREVENT PARTS FROM MATING.

DESCRIPTION OF EO: REF EO A2: ADDED QUAL TEST REQUIREMENTS TO E.O. REVISED -23 CALLOUT: ADDED JOG DN .030/.020 WAS JOG UP .030/.020

GAEC EO RELEASE: C JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		QUAL TEST (70)	
		LM-2(32) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
	JAP						DAM	
DATE	7/6/67				5/8/67	5/8/67	5-12-67	5/8/67
1	VDI							

PRIORITY: C2

DRAWING TITLE: ANGLE D/S LANDING RADAR - REFLECTOR SPT.

DRAWING NO. LDW280-18271 EO NO. A3

ISSUED BY LIAISON G. MARTELL x3604 SECTION VEH DES. INT GROUP NO. 335 PL 25

01

NAS 9-1100

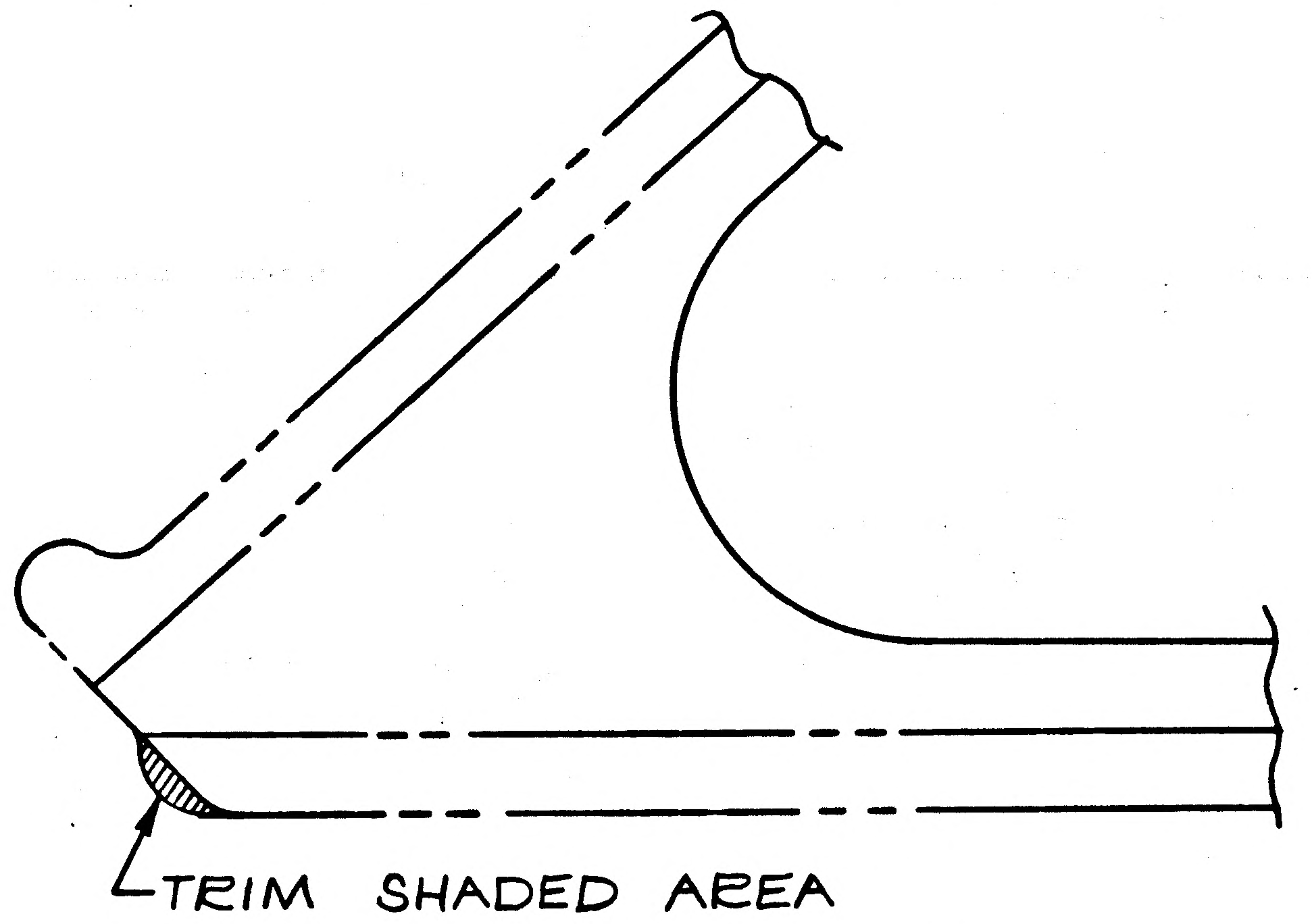
B PB

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18271
EO NO. A4
CONTROL INFO NO. LM-2-3674



LDW280-18271-23 ANGLE

TO BE LOFTED

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: TO PROVIDE CLEARANCE FOR PLATENUT INSTALLATION

DESCRIPTION OF EO: FOR -23, IN FLD, TRIMMED EDGE OF FLANGE

GAEC EO RELEASE: JL
02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32) THRU	
		LM-15(45)	
		QUAL TEST (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY						MS		
DATE	7/6/67					6/20/67	6/20/67	6/26
-1-	VDI							

7/11/67

PRIORITY: C
DRAWING TITLE: ANGLE~DESCENT STAGE~LANDING RADAR REFLECTOR SPT. TRUSS
DRAWING NO. LDW280-18271
EO NO. A4

ISSUED BY LIAISON J. MALONEY 6/20/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO LEO 280
EO NO. 1381
CONTROL INFO NO LDW280B7425

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO		CHANGE NO	DWG NOMENCLATURE
LDW280-18223	✓	B3	SEE DWG
-18224	✓	B1	
-18225	✓	A1	
-18236	✓	C1	
-18238	✓	A2	
-18265	✓	A3	
-18266	✓	A4	
-18267	✓	A3	
-18268	✓	A3	
LDW280-18271	✓	A5	SEE DWG

* APPLICABLE DASH NOS

☑ LCD 3581 PKG 54 PG. 2 CCA 1821 (5)

LM-15(45) NO LONGER REQD

DELETED LM-15(45) EFF. FROM -*

4/22/9

LM LM-15(45)

✓ ✓

VO1

4-2-69

4/19/69

C SEE DWG LEO 280 1381

03 2869

ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[illegible] NO. LEO 280 — EO NO. 1524
CONTROL INFO NO. LDW 280B 8108

ENG 32.1 REV 3-65

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10~~ ~~(40)~~ [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW280-18466 ✓	SEE DWG	A6
224 ✓		B2
225 ✓		A2
236 ✓		C2
238 ✓		A3
265 ✓		A4
266 ✓		A5
267 ✓		A4
268 ✓		A4
LDW280-18271	SEE DWG	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 29

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE: 8-6-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG — RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK — SCRAP)

APPROVED BY	PBT				N			Bauman
DATE	7-29-69			7/31/69	8/1/69		8/1/69	8-9-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1524

8-22-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	100, 1.10							INC EO A1 ADDED SHEET 1.10	QUALTEST(70)			OBERNIER 1-24-69		
	2	200, 1.10							INC EO A2	NOT REQ'D					
	3	1.10, 3.00							INC EO A3	LM-2 THRU LM-15					
	4	100, 1.10		LFM 200					INC EO A4	LM-5 THRU LM-15					
	5	1.00, 1.10							INC LEO 280-1176	LM-5					

CHG APPROVED

LTR	GROUP LDR	V D I	STRUCT	STRUCT	WEIGHTS	RELIABILITY				
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18272	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18272 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
LM		LM-6(36)	2
LFM 200	LDW280-66663	LM-5(35)	2
LM	LDW280-52663	LM-4(34)	2
LM	LDW280-52663	LM-3(33)	2
LM	LDW280-52663	LM-2(32)	2

PART NO. LDW280-18272-17 — GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
LM		LM-6(36)	1 EA
LFM 200	LDW280-66663	LM-5(35	1 EA
LM	LDW 280-52663	LM-4(34	1 EA
LM	LDW280-52663	LM-3(33)	1 EA
LM	LDW280-52663	LM-2(32)	1 EA

PART NO. LDW280-18272-13-15&-19 — GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52574	QUAL TEST(70)	1 EA.
LM	LDW280-52574	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
		LM-3(33)	1 EA
LM	LDW280-52574	LM-2(32)	1 EA

PART NO. LDW280-18272-11&-12 — GAEC SCH NO. 52

WORK PKG FUNCTION #110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO A
PRIM NO. 207
JK(001) ME-1A 3/6/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/64 ±.010 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 19-807

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A. SCHMADTKE 3/23/67	RELIABILITY	
LAYOUT BY	R. CLARK		
CHECKED BY	3·24·67		
GR LEADER	3/27/67		
VEH DES INT	J. Pusateri 3/24/67		
STRUCTURES	3/24/67	PROJ ENGR	D.G. McClanahan 3/27/67
STRUCTURES	3/24	REL GROUP	3/27/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE - LANDING RADAR
REFLECTOR SUPPORT- L.H. TRUSS

SIZE B CODE IDENT NO. 26512 LDW280-18272 A
SCALE NONE SHEET 1.00 OF 4

ENG 77.1 12-65

CDE 3/20/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18272 -19	E		CLIP	TITANIUM SH	MIL-T-9046 TYPE III	6AL-4V	.020 x 2 x 2	NONE	NONE	
	-17	↕		CLIP	↕	COMP. C COND ANNEALED	↕	.020 x 2 x 2	↕	↕	
	-15	↕		ANGLE	↕	↕	↕	.020 x 2 x 12	↕	↕	
	-13	↕		ANGLE	↕	↕	↕	.020 x 2 x 11	↕	↕	
	-12	↕		ANGLE	↕	MIL-T-9046 TYPE III	↕	.030 x 2 x 23	NONE	NONE	
	LDW280-18272-11	E		ANGLE	TITANIUM SH	COMP. C COND ANNEALED	6AL-4V	.030 x 2 x 23			

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

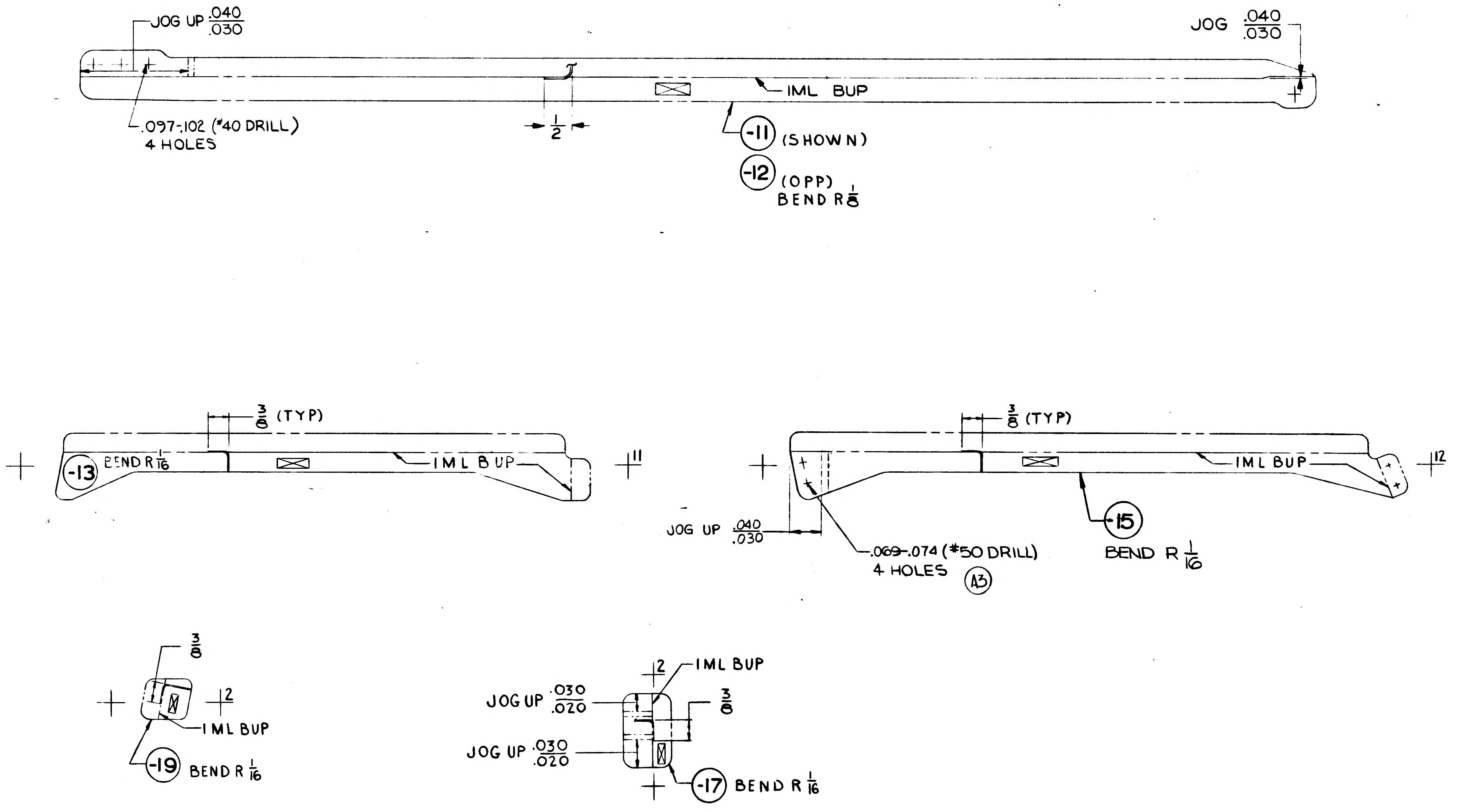
SIZE	CODE IDENT NO.		
B	26512	LDW280-18272	A
SCALE NONE		SHEET 2.00	

ENG 77.2 5-64

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.


JOG UP $\frac{.040}{.030}$
JOG $\frac{.040}{.030}$
.097-.102 (#40 DRILL)
4 HOLES
$\frac{1}{2}$
IML BUP
-11 (SHOWN)
-12 (OPP)
BEND R $\frac{1}{8}$
$\frac{3}{8}$ (TYP)
-13 BEND R $\frac{1}{16}$
IML BUP
11
$\frac{3}{8}$ (TYP)
IML BUP
12
JOG UP $\frac{.040}{.030}$
.069-.074 (#50 DRILL)
4 HOLES
A3
-15
BEND R $\frac{1}{16}$
$\frac{3}{8}$
2
IML BUP
-19 BEND R $\frac{1}{16}$
2 IML BUP
JOG UP $\frac{.030}{.020}$
$\frac{3}{8}$
JOG UP $\frac{.030}{.020}$
-17 BEND R $\frac{1}{16}$

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18272 A

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18272	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.50	

FOR PHOTO REPRODUCTION 1 IFR K2

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO.	LDW280-18272	EO NO.	A1
CONTROL INFO NO.	LDW280A6198		

IN M/B FOR -11&-12, ADD QUAL.TEST(70) EFF, SAME QUAN & N/A AS LM-15.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 809	5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PARTS REQ'D FOR QUAL TEST (RECP 655) LCD 809	ADDED QUAL.TEST EFF. TO -11&-12	Ⓡ C JK 4/5/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		QUAL.TEST(70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
				APPROVED BY							RWC	
		NOT REQD		DATE	4/3/67			4/3/67	4/4/67		4-4-67	4-5-67
✓ REVISE DWG	RECORD EO	REWORK	SCRAP	5	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE	LDW280-18272	A1

ISSUED BY R.WINK/J.STRAKOSCH x1153 SECTION VEH.DES.INT. GROUP NO. 335 PL 25

01

NAS 9-1100

PS

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18272 | EO NO. A2
CONTROL INFO NO. LM-2-3526

IN B/M FOR -11 THRU -19, REVISE MATERIAL
FROM: TITANIUM 6AL-4V, MIL-T-9046 TYPE III, COMP. C COND. STA
TO: TITANIUM 6AL-4V, MIL-T-9046 TYPE III, COMP. C COND. ANNEALED

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☑ | CL I ENGRG CHG ☐

2 C

REASON FOR EO: (DRAWING CORRECTION ONLY) MATERIAL IN STA CONDITION CANNOT BE FORMED TO DESIRED CONFIGURATION. ANNEALED REQD

DESCRIPTION OF EO: FOR -11 THRU -19, IN B/M, REVISED MATERIAL CALLOUT, "COND. ANNEALED" WAS "COND. STA"

GAEC EO RELEASE: JK 0213

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQD	DATE	7/6/67			~	4/25/67	4/25/67	4-27-67 DAM	4/25/67
REVISE DWG	RECORD EO	REWORK	SCRAP	-6-	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: E
DRAWING TITLE: ANGLES ~ DESCENT STAGE LANDING RADAR REFLECTOR
DRAWING NO.: LDW280-18272
EO NO.: A2

ISSUED BY LIAISON J. MALONEY 4/25/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01

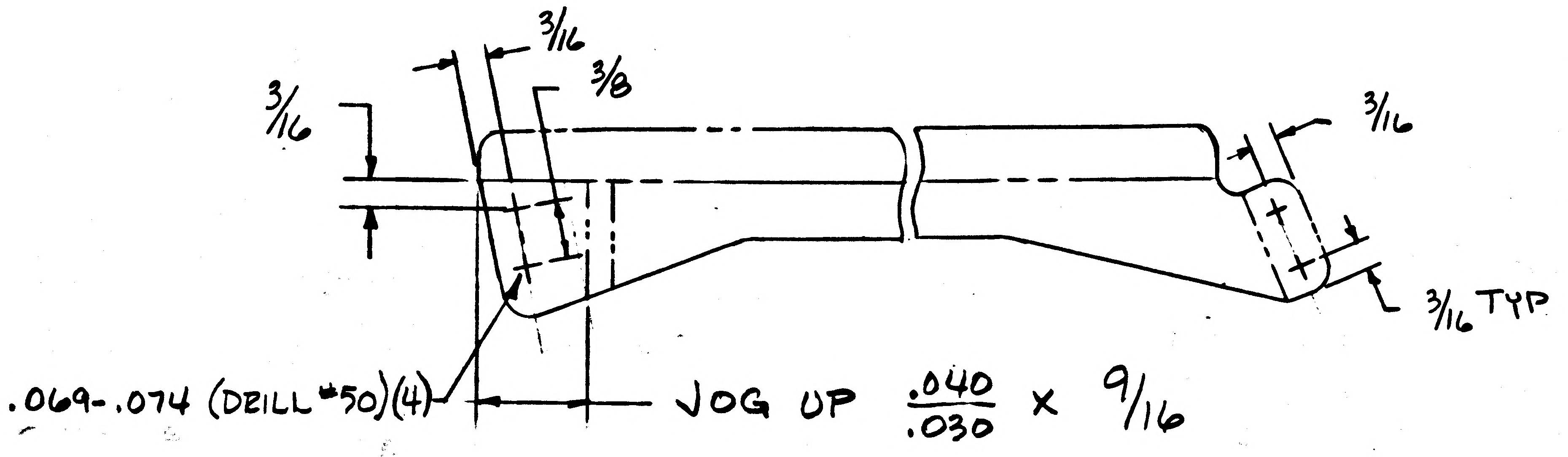
NAS 9-1100

A1, A2
B
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18272 | EO NO. A3
CONTROL INFO NO. LM-2-3590

ADD JOGGLE & PILOT HOLES AS SHOWN TO -15



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	2

REASON FOR EO: JOGGLE REQD FOR PROPER ASSY OF PARTS
HOLES REQD FOR LOCATING RIVETS

DESCRIPTION OF EO: FOR -15, ADDED JOG UP $\frac{.040}{.030}$; .069-.074 (DRILL #50)(4)

GAEC EO RELEASE: C JK 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32) thru LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
REVISE DWG	RECORD EO	REWORK	SCRAP		Jap			~	MBS	Ctf	DAM
✓		✓		DATE	7/6/67			~	5/18/67	5/18/67	5-19-67
				-1-	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE - D/S - LDG RADAR REFLECTOR SUPT - L.H. TRUSS	LDW280-18272	A3

ISSUED BY LIAISON C. Farley x3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18272
EO NO. A4
CONTROL INFO NO. LDW-280-B4994

REVISE N/A;
FOR LDW 280-18272-13,-15,-17 & -19
FROM LDW-280-52663 TO LDW 280-66663 EFF. LM-6 (36) THRU LM-15 (45)
SAME QUANT. REQ'D /MODULE

ADD REQMTS. FOR LFM 200, LM-5 (35) N/A LDW280-66663 SAME QUANT. REQ'D/MODULE

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2965 PKG. I CCA 1235 (5)

GAEC EO RELEASE IC

REASON FOR EO: BASE HEAT SHIELD REDESIGN FOR D/E THRUST DECAY

DESCRIPTION OF EO: REVISED N/A FOR -13,-15,-17 & -19 FROM LDW 280-52663 TO LDW 280-66663 EFF. LM-6(36) THRU LM-15 (45) ADDED REQMTS. FOR LFM 200, LM-5(35) N/A LDW280-66663

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6 (36) THRU	LM-15 (45)
LM		LFM 200, LM-5 (35)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D. REWORK SCRAP

PRIORITY: C

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY	VDI			G.J.	N.M.			
DATE				8-7-68	8-9-68		8/12/68	8/17-68

DRAWING TITLE: ANGLE-DESCENT STAGE-LDG. RADAR REFLECTOR SUPPORT L.H. TRUSS

DRAWING NO. LDW280-18272 EO NO. A4

08-09-68
ISSUED BY R. STILWELL / P. THORJUSEN X1153 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 1176
CONTROL INFO NO. LDW 280B 5631

CHG. LTR.	DRAWING No. *	RESTRICT FOR USE ON	WAS USED ON
✓ A6	LDW280-18367 -21	LM-6(36) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).
✓ A5	LDW280-18272 -13, -15, -17, & -19	LM-2(32) THRU LM-4(34), LM-6(36) THRU LM-15(45), LFM 200 LM-5(35)	LM-2(32) THRU LM-15(45), LFM 200 LM-5(35).
A2	LDW280-18590-11, -12 -13, -14, -20, -19, -21, -22	LM-6(36) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).
	LDW280-18590 -15, -17 -23	LM-6(36) THRU LM-15(45), LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45), & LFM 200 LM-5(35)
A2	LDW280-18592-11, -13 -14, -15, -16	LM-6(36) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45) LFM 200 LM-5(35) DVT(70)

FOR TITLE SEE DWG.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2965 PKG. 5 CCA 1235

GAEC EO RELEASE

REASON FOR EO: REDESIGN BASE HEAT SHIELD FOR D/E THRUST DECAY

DESCRIPTION OF EO: RESTRICTED EFF OF -* BY REMOVING LM-5(35) PRODUCTION EFF

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	~~LT~~		
LM		LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	10/21/68			10/19/68	10/22/68		10/22/68	10-23-68
	YDI	SUPPORT	RELIAB. GROUP					

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1176

CDR 10/25/68
ISSUED BY Joe Lucchesi PR/G. Zeman x86046 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERI~~ ORDER

DWG. NO. LEO 280		EO NO. 1436
CONTROL INFO NO. LDW280B7426		

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18272	B1	SEE DWG
-18273	B1	
-18281	A4	
-18283	B1	
-18286	B2	
-18290	B1	
-18301	B1	
-18312	B4	
LDW280 -18313	B2	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 54 PG 243, ECP U069, CCA1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED. LM-15(45) EFF FROM -*

GAEC EO RELEASE: SAB 5-1-69; VC 5/6/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	5-5-69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1436

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
E IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280		EO NO. 1521
CONTROL INFO NO. LDW 280B 8109		

FOR ALL PART L NUMBERS EFFECTIVE ON LM-10 (40 [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
LDW 280-18272	SEE DWG	B 2	
273		B 2	
281		A 5	
283		B 2	
286		B 3	
290		B 2	
313		B 3	
316		A 2	
325		B 2	
LDW 280-18326	SEE DWG	B 2	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 29 & 30 & 92 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

Ⓡ GAEC EO RELEASE: Sal 8-6-69; JK 8/8/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
				APPROVED BY					N		Bauman
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8/2/69		8-7-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1521

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18273 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52574	QUAL TEST (70)	2
LM	LDW280-52574	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9 (39)	2
		LM-8 (38)	2
		LM-7 (37)	2
		LM-6 (36)	2
		LM-5 (35)	2
		LM-4 (34)	2
		LM-3 (33)	2
LM	LDW280-52574	LM-2 (32)	2
PART NO. LDW280-18273-13		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52574	QUAL TEST (70)	1 EA
LM	LDW280-52574	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
		LM-3(33)	1 EA
LM	LDW280-52574	LM-2 (32)	1 EA
PART NO. LDW280-18273-11,-15,-17 & -19		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO A
PRIM NO. 207 JK(001) ME-3A 12/11/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A.SCHMADTKE 3/17/67	RELIABILITY	
LAYOUT BY	R.CLARK		
CHECKED BY	WGG 3-22-67		
GR LEADER	J. Strahsnack 3/23/67		
VDI DES INT	J. Guaster 3/23		
STRUCTURES	3/24/67	PROJ ENGR	D.O. McGlaughan 3/27/67
STRUCTURES	3/26	REL GROUP	3/27/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE- LANDING RADAR
REFLECTOR

SIZE B
CODE IDENT NO. 26512
LDW280-18273 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 3-20-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18273-19	E		ANGLE	TITANIUM SH	MIL-T-9046 TYPE III	6AL-4V	.030 X 2 X 4	NONE	NONE	
						COMP.C,COND.ANL					
	-17							.030 X 2 X 24			
	-15							.030 X 2 X 23			
	-13			ANGLE				.030 X 2 X 15			
						MIL-T-9046 TYPE III					
	LDW280-18273-11	E		WEB	TITANIUM SH	COMP.C.COND ANL	6AL-4V	.020 X 16 X 25	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

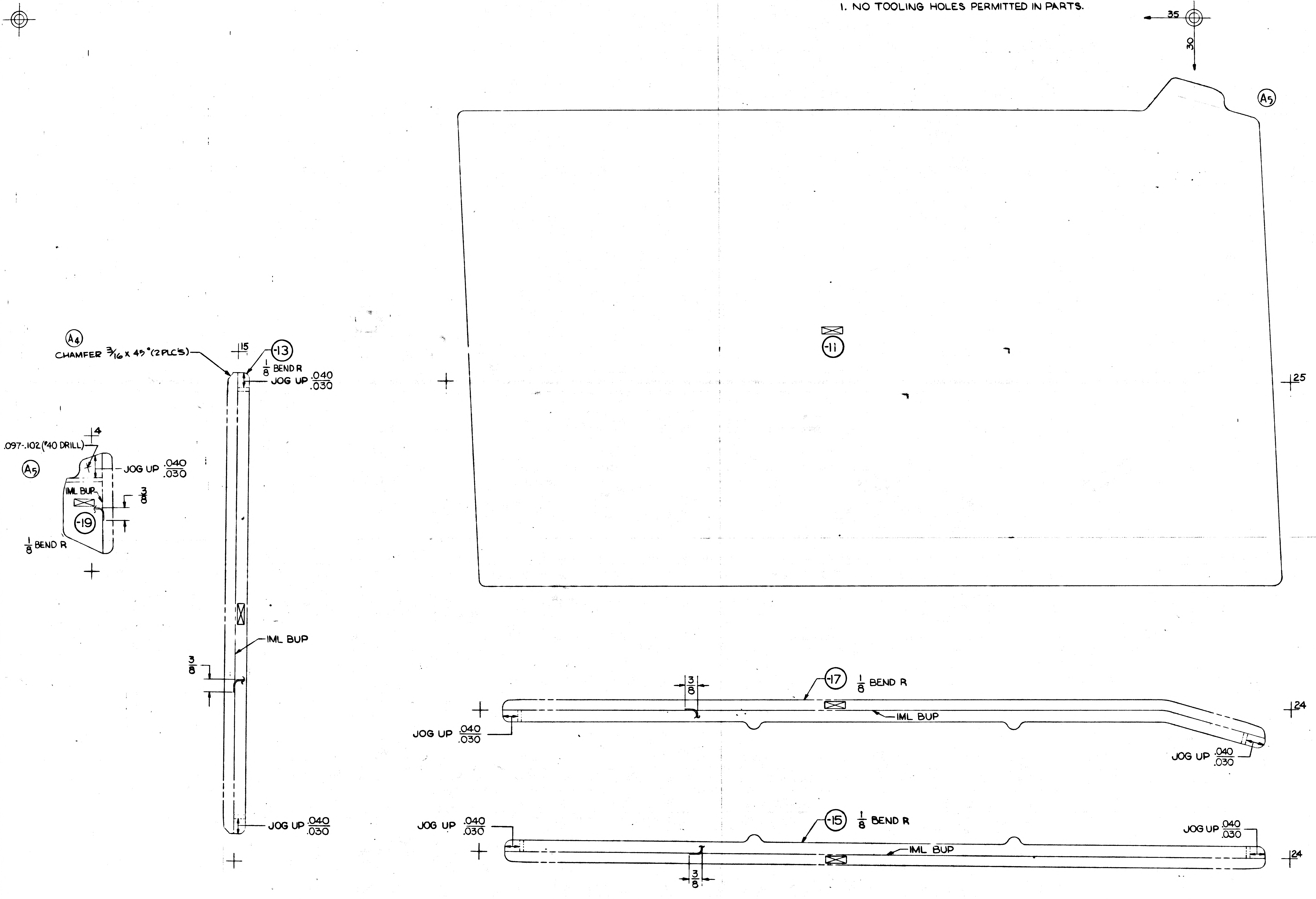
SIZE	CODE IDENT NO.		
B	26512	LDW280-18273	A
SCALE NONE		SHEET 2.00	

ENG 77.2 5-64

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



35
30
(A5)
-11
25
(A4)
CHAMFER 3/16 X 45° (2 PLC'S)
15
-13
1/8 BEND R
JOG UP .040/.030
4
.097-.102 (#40 DRILL)
(A5)
JOG UP .040/.030
IML BUP
3/8
-19
1/8 BEND R
IML BUP
3/8
JOG UP .040/.030
3/8
-17
1/8 BEND R
IML BUP
JOG UP .040/.030
24
JOG UP .040/.030
JOG UP .040/.030
-15
1/8 BEND R
IML BUP
JOG UP .040/.030
24
3/8

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE E	CODE IDENT NO. 26512	LDW280-18273	A
MODEL OR END ITEM LM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00				✓		EO A1, LCD 809	ADDED SH. 1.10. ADDED QUAL TEST EFF. TO -11 THRU -19	QUAL TEST (70)	NOT	REQ'D	R.J. PRIZZI 12-9-68		
	2	2.00					✓	EO A2	FOR -11 & -12 IN B/M, REVISED MATERIAL CALLOUT, "COND. ANNEALED" WAS "COND. STA".	NOT REQ'D					
	3							EO A3	REF: EO-A2. "FOR -11 & -12" SHOULD BE "FOR -11 THRU -19"						
	4	3.00					✓	EO A4	FOR -13, IN FLD, ADDED CHAMFER 3/16 x 45° (2 PLC'S)	LM-2 TO 15 QUAL TEST (70)	✓				
	5	3.00		④			✓	EO A5	IN FLD/DWG FOR -11 & -19, REVISED TRIM.			12/16/68	E.C.G.		

CHG APPROVED	LTR	GROUP LDR
	A	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18273	A

SCALE NONE

SHEET 1.10

ENG 77.16 3-68

01

NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1436
CONTROL INFO NO. LDW280B7426

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18272	B1	SEE DWG
-18273	B1	
-18281	A4	
-18283	B1	
-18286	B2	
-18290	B1	
-18301	B1	
-18312	B4	
LDW280 -18313	B2	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 54 PG 243, ECP 0069, CCA1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: SAB 5-1-69; VC 5/6/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	5-5-69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1436

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[illegible] LEO 280 | EO NO. 1521
CONTROL INFO NO. LDW 280B 8109

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40 [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW 280-18272	SEE DWG	B2
273		B2
281		A5
283		B2
286		B3
290		B2
313		B3
316		A2
325		B2
LDW280-18326	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 29 & 30 & 92 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE: 8-6-69; JK 8/8/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
					N			Bauman
DATE 7-29-69				7/29/69	8/2/69		8/2/69	8-7-69
VDI	SUPPORT	RELIAB. GROUP						

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1521

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18279 C

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51555	LM-3(33)	1
LM	LDW280-51555	LM-2(32)	1

PART NO. LDW 280-18279-7

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51555	LM-1(31)	1

PART NO. LDW280-18279-5

GAEC SCH NO. 50-2

WORK PACKAGE FUNCTION # 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	1.11	4.00			
REV	C	C	C	C	C	C			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -45

GRUMMAN REL INFO B C

PRIM NO. 207

JK/001 ME-3C-1/13/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY E.SICK 3/17/67

LAYOUT BY G.BARNES

CHECKED BY 3-21-67

GR LEADER 3/23/67

VEH DES INT J. Curatin 3/23/67

STRUCTURE 3/23/67

STRUCTURE 3/23

WEIGHTS

RELIABILITY

PROJ ENGR C. A. McLaughlin 3/27/67

REL GROUP 3/27/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET ASSY
DESCENT STAGE-LM-SLA ANTENNA
SWITCH SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18279 C

SCALE NONE

SHEET 1.00 OF 6

G77.1 12-66

CVR - 5-20-67

01

NAS 9-1100

-7	-5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			MS20470AD4	E	RIVET	STD PART						
			MS20426AD4		RIVET	STD PART						
	4		MS20470DD4		RIVET	STD PART						
	4		MS20470AD3		RIVET	STD PART						
	6		NAS1097AD4		RIVET	STD PART						
1			LDW280-18279-45		BRACKET	AL ALLOY SH	QQ-A-250/4	2024	.050 x 6x6	T3	88	
1			-41		BRACKET		QQ-A-250/4	2024	.050 x 6x6	T3		
	1		39		BRACKET		QQ-A-250/4	2024-T3	.050 X 4 X 6	NONE		
	1		-37		BRACKET		QQA-250/4	2024-T3	.050 X 6 X 6	NONE		
	1		-35		CHANNEL		QQ-A-250/12	7075	.050 X 4 X 4	T6		
	1		LDW280-18279-33		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.050 X 3 X 4	T6	88	
			LDW280-18279-7		BRACKET ASSY					NONE	NONE	
			LDW280-18279-5	E	BRACKET ASSY					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
T3	AL HEAT TREAT	MIL-H-
88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18279	C

SCALE NONE

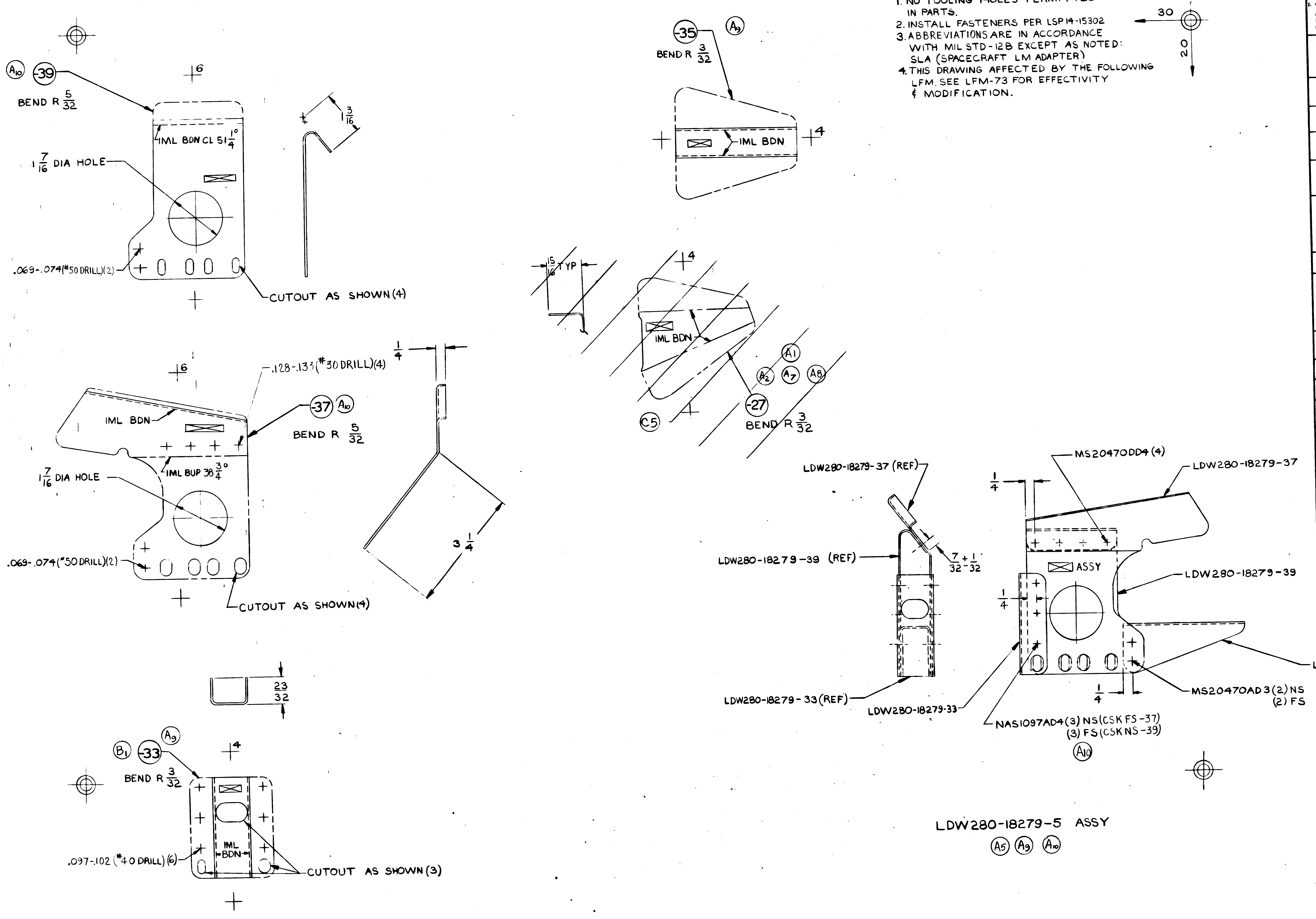
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. INSTALL FASTENERS PER LSP14-15302
3. ABBREVIATIONS ARE IN ACCORDANCE WITH MIL STD-12B EXCEPT AS NOTED: SLA (SPACECRAFT LM ADAPTER)
4. THIS DRAWING AFFECTED BY THE FOLLOWING LFM. SEE LFM-73 FOR EFFECTIVITY & MODIFICATION.



(A10) -39
BEND R 5/32
IML BDN CL 51 1/4°
1 7/16 DIA HOLE
.069-.074 (#50 DRILL)(2)
CUTOUT AS SHOWN (4)
1 3/16
-35 (A9)
BEND R 3/32
IML BDN
15/16 TYP
IML BDN
(A1)
(A2) (A7) (A8)
-27
BEND R 3/32
(C5)
.128-.133 (#30 DRILL)(4)
-37 (A10)
BEND R 5/32
IML BDN
IML BUP 38 3/4°
1 7/16 DIA HOLE
.069-.074 (#50 DRILL)(2)
CUTOUT AS SHOWN (4)
1/4
3 1/4
23/32
(B1) -33 (A9)
BEND R 3/32
IML BDN
.097-.102 (#40 DRILL)(6)
CUTOUT AS SHOWN (3)
30
20
LDW280-18279-37 (REF)
LDW280-18279-39 (REF)
7/32 + 1/32 − 1/32
LDW280-18279-33 (REF)
MS20470DD4 (4)
LDW280-18279-37
ASSY
LDW280-18279-39
LDW280-18279-35
MS20470AD3 (2) NS (2) FS
LDW280-18279-33
NAS1097AD4 (3) NS (CSK FS-37) (3) FS (CSK NS-39)
(A10)
1/4
LDW280-18279-5 ASSY
(A5) (A9) (A10)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE ~~AVERAGE~~ EDGE DISTANCE ~~MARKED~~ IS 1.5 FASTENER DIA FROM FASTENER ℄	✓
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	F	26512	LDW280-18279	C
	SCALE FULL		SHEET 3.00	

SUPERSEDES SH 3.00 OF LDW280-18279 LAST REV NC 3/27/67 2 FOR PHOTO REPRODUCTION 1 K2

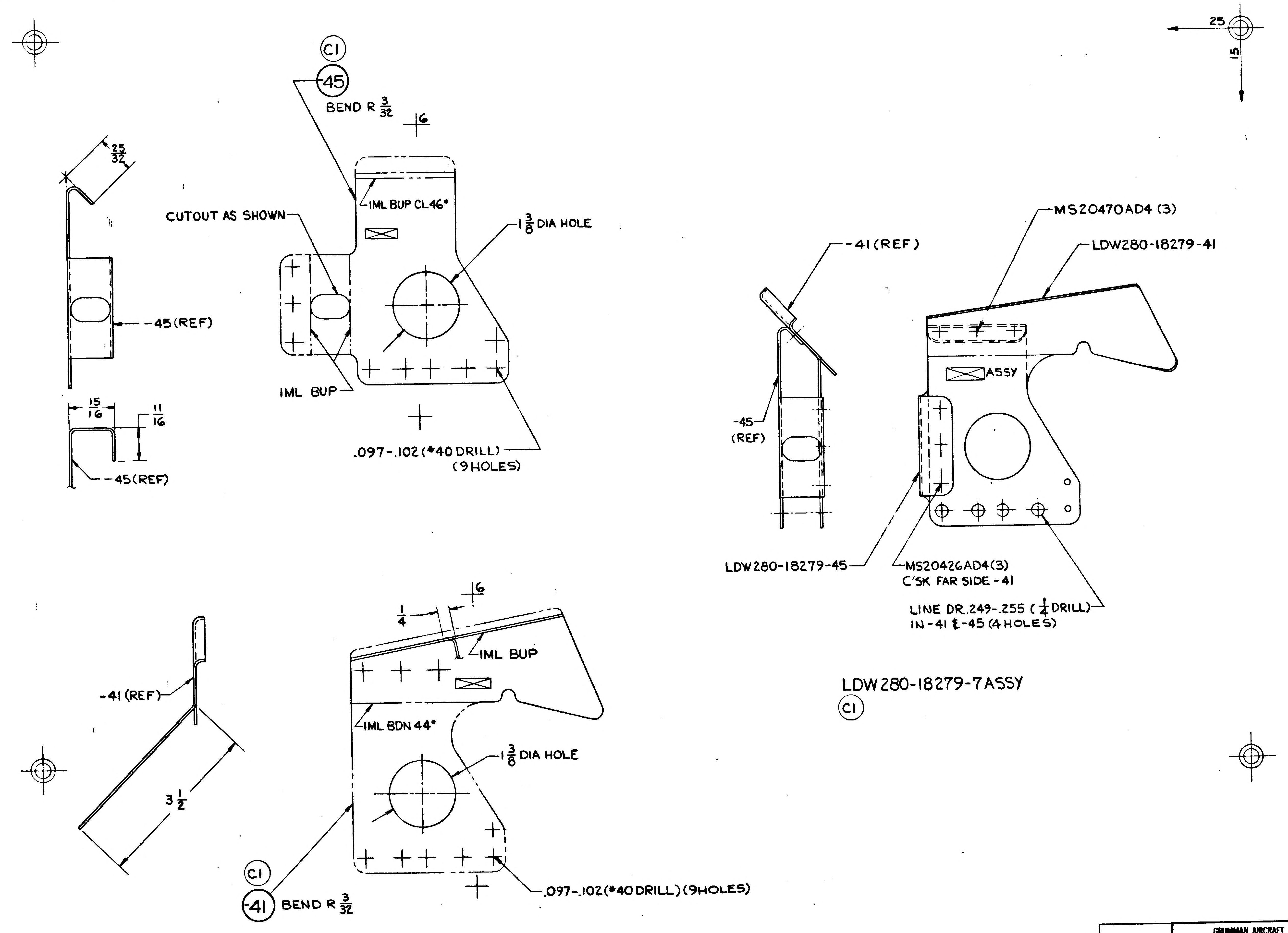
LDW280-18279 C

NAS 9-1100

LDW280-18279 C

[illegible] 4/5/64

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY~~	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	



C1
-45
BEND R $\frac{3}{32}$
16
IML BUP CL 46°
CUTOUT AS SHOWN
$1\frac{3}{8}$ DIA HOLE
IML BUP
.097-.102 (#40 DRILL) (9 HOLES)
$\frac{25}{32}$
-45 (REF)
$\frac{15}{16}$
$\frac{11}{16}$
-45 (REF)
MS20470AD4 (3)
LDW280-18279-41
-41 (REF)
ASSY
-45 (REF)
LDW280-18279-45
MS20426AD4 (3) C'SK FAR SIDE -41
LINE DR .249-.255 ($\frac{1}{4}$ DRILL) IN -41 ℄ -45 (4 HOLES)
LDW280-18279-7 ASSY
C1
25
15
$\frac{1}{4}$
16
IML BUP
IML BDN 44°
$1\frac{3}{8}$ DIA HOLE
-41 (REF)
$3\frac{1}{2}$
C1
-41
BEND R $\frac{3}{32}$
.097-.102 (#40 DRILL) (9 HOLES)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18279	C
	SCALE FULL		SHEET 4.00	

FOR PHOTO REPRODUCTION

ENG 73.3 REV 5-67

LDW280-18279 C

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	[redacted]	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
										RETRACED SH 3.00 NO CHG-LAST REV NO CHG GOLDMACHER 11-9-67						
A	1	1.10 3.00						✓	EO A1	IN FLD FOR-11 REVISED FLAT PATTERN, FOR-1 ADDED TYP TO 15/32 & 53/64. DELETED 15/32, 53/64, 1 11/16 & 3 3/4. ADDED SH 1.10	NOT REQ'D	NOT	REQD	GOLDMACHER 11-13-67		
	2	1.00, 2.00 3.00						✓	EO A2	ADDED -25, & -27, REMOVED -11 & -13	LM-1 (31) THRU LM-15 (45)		-11 -13			
	3	3.00						✓	EO A3	FOR-11 IN FLD. IML BUP OP 51 1/4°, WAS IML BUP OP 38 3/4°	NOT REQD	NOT	REQ'D			
	4	-						✓	EO A4	REF EO A3 "FOR-11" SHOULD BE "FOR-25	NOT REQD	NOT	REQD			
	5	1.00, 200 3.00						✓	EO A5	IN FLD B/M & MOD BLOCK ADDED -3 ASSY. REMOVED -1 ASSY. IN FLD & B/M ADDED -29, REMOVED -25	LM-1 (31) THRU LM-15 (45		-25			
	6	1.00, 2.00 3.00						✓	EO A6	REF EO A5, ON -3 NAS 698C06 (1) WAS NAS697C06 (1)	LM-2 (32) THRU LM-15 (45)	✓				
	7	3.00						✓	EO A7	IN FLD TRIMMED -13	LM-2 (32) THRU LM-15 (45)	✓				
	8							✓	EO A8	REF EO A7 "TRIM-27" WAS "TRIM-13	LM-2 (32) THRU LM-15 (45)	✓				
	9	1.00, 2.00 3.00			B		✓		EO A9 LCD 2319	ADDED -5 ASSY WAS -3 ASSY, FOR LM1 (31) THRU LM15 (45). ADDED NOTE 4	LM-1 (31) THRU LM-15 (45)		-3			
	10	2.00, 3.00			B		✓		EO A10 LCD 2319	REF EO A9 REVISED -5 ASSY, ADDED -37 & -39, MS20470DD4 (4). REMOVED -31 & REVISED CALLOUT NAS1097AD4 (6) WAS (3)	LM-1 (31) THRU LM-15 (45)		-31			
B	1	3.00			E A9B Ⓡ		✓		EO B1 LCD 2319	TRIMMED -33, 23/32 ± 1/32 WAS 2 21/32	LM-1 (31) THRU LM-15 (45	✓		GZ		
C	1	1.00, 1.10 2.00, 4.00			B		✓		EO C1 LCD 2319	ADDED -7, REMOVED -5, -37 & -39 FOR LM-2 THRU LM-15 ADDED SH 4.00 (ADDED -41 & -45)	LM-2 (32) THRU LM-15 (45)		✓	F R 11-8 68 CHG		

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

ENG 77.3 5-64

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18279	C Ⓒ
SCALE NONE			SHEET 1.10

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
C	2	1.11, 4.00				✓		EOC2 LCD 2319	REF EOC1 IN F/D ON-41, 11/16R WAS 11/32R ADDED SH 1.11	LM-2 (32) THRU LM-15 (45)		✓	F. ROTH 1-8-68		
	3	1.00, 1.11 2.00, 4.00				✓		EOC3 LCD 2319	REF EOC1 ON-7, ADDED -45 & REMOVED -43	LM-2 (32) THRU LM-15 (45)		-43			
	4	1.00, 1.11		S		✓		LEO280-884 LCD 2685	FOR -7, REMOVED EFF LM-4 THRU LM-15 N/A LDW280-51555	LM-4 (34) THRU LM-15 (45)		✓			
	5	1.00, 1.11 2.00, 3.00		LFM# 73 Ⓡ		✓		EOC5 LCD 2319	IN F/D, B/M & M/B, REMOVED -27	LM-1 (31) THRU LM-15 (45)		✓ 1/13/68	E.C.G.		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY				
C										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18279	C Ⓒ
SCALE NONE			SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

01 NAS 9-1100

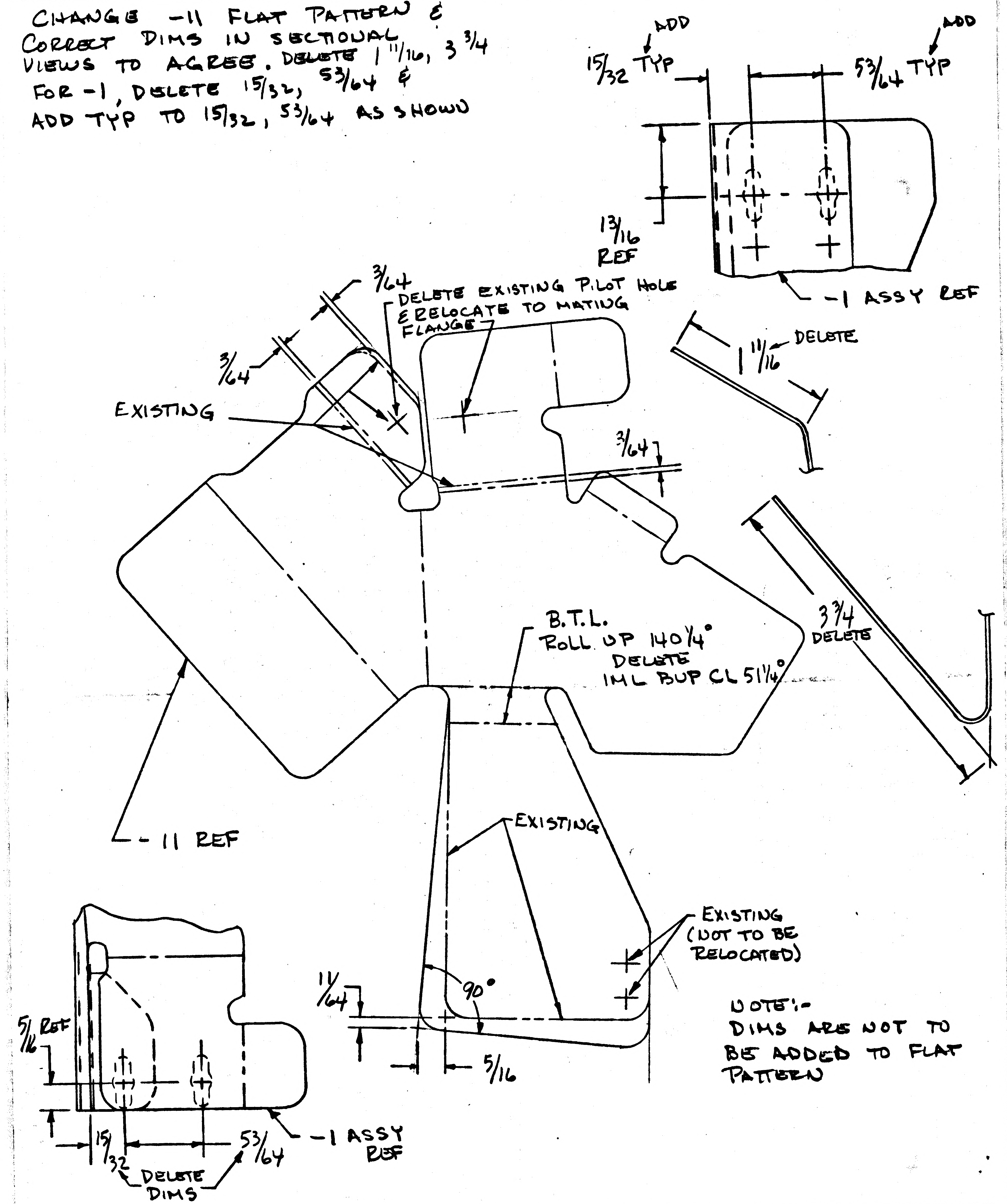
PD

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18279
EO NO. A1
CONTROL INFO NO. LM-2- 3499

CHANGE -11 FLAT PATTERN & CORRECT DIMS IN SECTIONAL VIEWS TO AGREE. DELETE 1 11/16, 3 3/4
FOR -1, DELETE 15/32, 53/64 &
ADD TYP TO 15/32, 53/64 AS SHOWN


ADD
15/32 TYP
ADD
53/64 TYP
13/16 REF
-1 ASSY REF
3/64
DELETE EXISTING PILOT HOLE & RELOCATE TO MATING FLANGE
3/64
EXISTING
1 11/16 DELETE
3/64
3 3/4 DELETE
B.T.L.
ROLL UP 140 1/4°
DELETE
IML BUP CL 51 1/4°
-11 REF
EXISTING
EXISTING (NOT TO BE RELOCATED)
90°
11/64
5/16
5/16 REF
15/32
53/64
DELETE DIMS
-1 ASSY REF

NOTE:- DIMS ARE NOT TO BE ADDED TO FLAT PATTERN

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: PART UNABLE TO BE FORMED PROPERLY. DRAWING CORRECTION

DESCRIPTION OF EO: IN FLD, FOR -11, REVISED FLAT PATTERN. FOR -1, ADDED TYP TO 15/32, 53/64. DELETED 15/32, 53/64; 1 11/16, 3 3/4.

GAEC EO RELEASE: VK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓		NOT	REQD	Gap			~	MBS	Ctf	DAM(E)	
DATE				7/6/67			~	4/19/67	4/19/67	4-21-67	4-19
				-6- VDI							

PRIORITY: E
DRAWING TITLE: BRACKET ASSY - D/S LM-SLA ANTENNA SWITCH SUPPORT
DRAWING NO. LDW280-18279
EO NO. A1

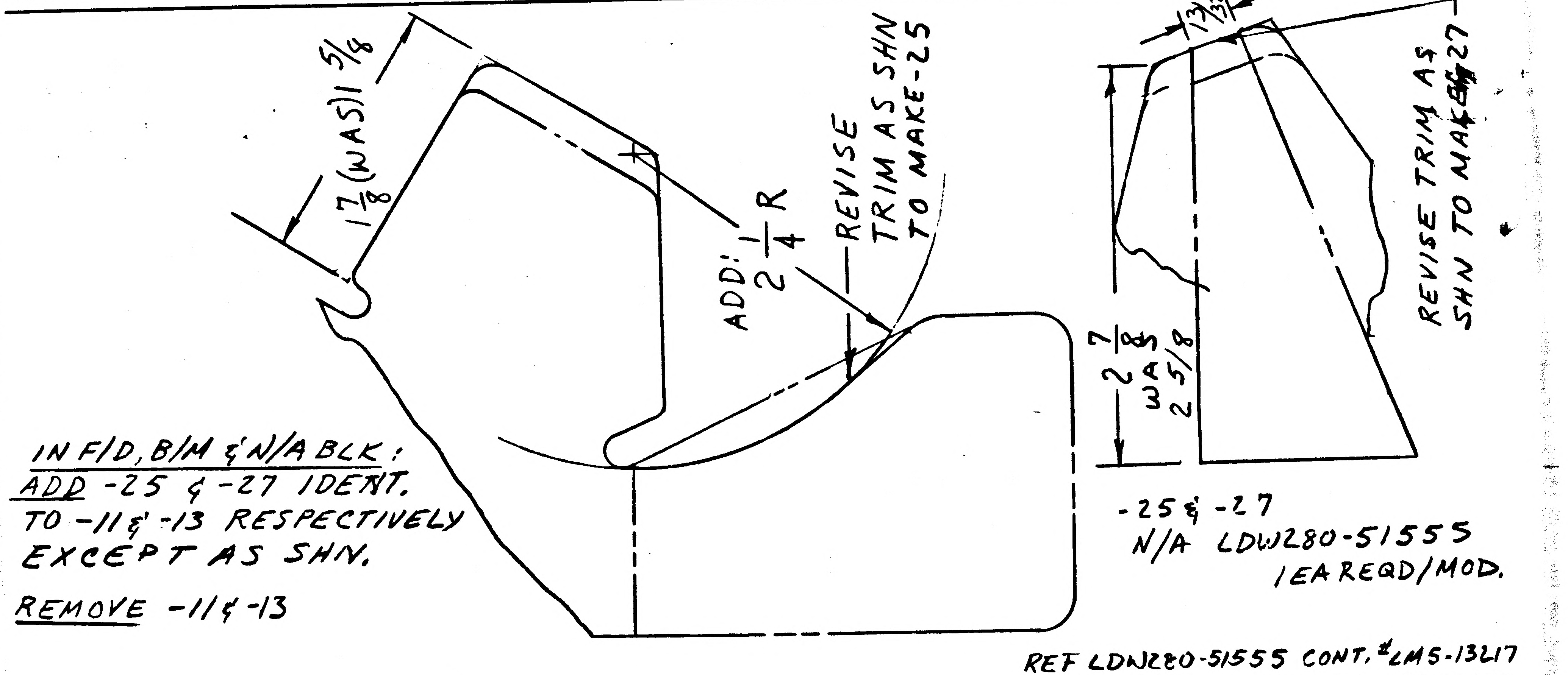
ISSUED BY LIAISON C. Farley x3604 4/19/67 SECTION V.D.I. GROUP NO. 335 PL 25

RELEASED BY LIAISON

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO.	LDW280 -18279	EO NO.	A2
CONTROL INFO NO.	LM5-132 3		



17/8 (WAS) 1 5/8
ADD: 2 1/4 R
REVISE TRIM AS SHN TO MAKE -25
3/32
REVISE TRIM AS SHN TO MAKE -27
2 7/8 WAS 2 5/8

IN F/D, B/M & N/A BLK:
ADD -25 & -27 IDENT. TO -11 & -13 RESPECTIVELY EXCEPT AS SHN.
REMOVE -11 & -13

-25 & -27
N/A LDW280-51555
1 EA REQD/MOD.

REF LDW280-51555 CONT. # LM5-13217
5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO
TO FACILITATE INSTL OF DETAIL PARTS	ADDED -25 & -27, REMOVED -11 & -13

GAEC EO RELEASE: C JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31) THRU 15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT				JF	CH	DAM	
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	4-21-67				4-22-67	4-22	4-24-67	4/22/67
✓			-11 -13	1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S -LM-SPC.CRFT- RECEPTACLE	LDW280-18279	A2

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO. 335 PL 5

01 NAS 9-1100

AD

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-18279
EO NO. A3
CONTROL INFO NO. LM-2-3549

FOR -11
IN FLD/DWG, REVISE CALLOUT
IML BUP OP 38 3/4° SHOULD BE IML BUP OP 51 1/4°

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ 2

REASON FOR EO: DRAWING CORRECTION ONLY (PART WILL NOT CLOSE ON ITSELF WITH GIVEN DIM)

DESCRIPTION OF EO: FOR -11, IN FLD, IML BUP OP 51 1/4° WAS IML BUP OP 38 3/4°

GAEC EO RELEASE: JK c

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

				SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								Ctf	DAM (E)	
DATE							5/4/67	5/3/67	5-9-67	5-4-67
-6-										

PRIORITY: E
DRAWING TITLE: BRACKET ASSY~DESCENT STAGE LM-SLA ANTENNA SWITCH SUPPORT
DRAWING NO.: LDW280-18279
EO NO.: A3

ISSUED BY LIAISON J. MALONEY 5/3/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

PP

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18279
EO NO. A4
CONTROL INFO NO. LM-2-3576

THIS IS A REVISION OF EO-A3

"FOR -11" SHOULD BE "FOR -25"

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: DRAWING CORRECTION ONLY
(PART WILL NOT CLOSE ON ITSELF)
(PART REIDENTIFIED BY EO-A2)

DESCRIPTION OF EO: REFERENCE EO-A3
"FOR -11" SHOULD BE "FOR -25"

GAEC EO RELEASE: C
SK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD
APPROVED BY: DATE 7/6/67 -6-
GROUP LEADER: ~ ~
STRESS GROUP: 5/9/67
LIAISON ENGRG: 5/9/67
PROJ ENGRG: DAM 5-12-67
5/9/67

PRIORITY: E
DRAWING TITLE: BRACKET ASSY~DESCENT STAGE LM-SLA ANTENNA SWITCH SUPPORT
DRAWING NO. LDW280-18279
EO NO. A4

ISSUED BY LIAISON J. MALONEY 5/9/67 x3604
SECTION V.D.I.
GROUP NO. 335
PL 25

01 NAS 9-1100

01
NAS 9-1100

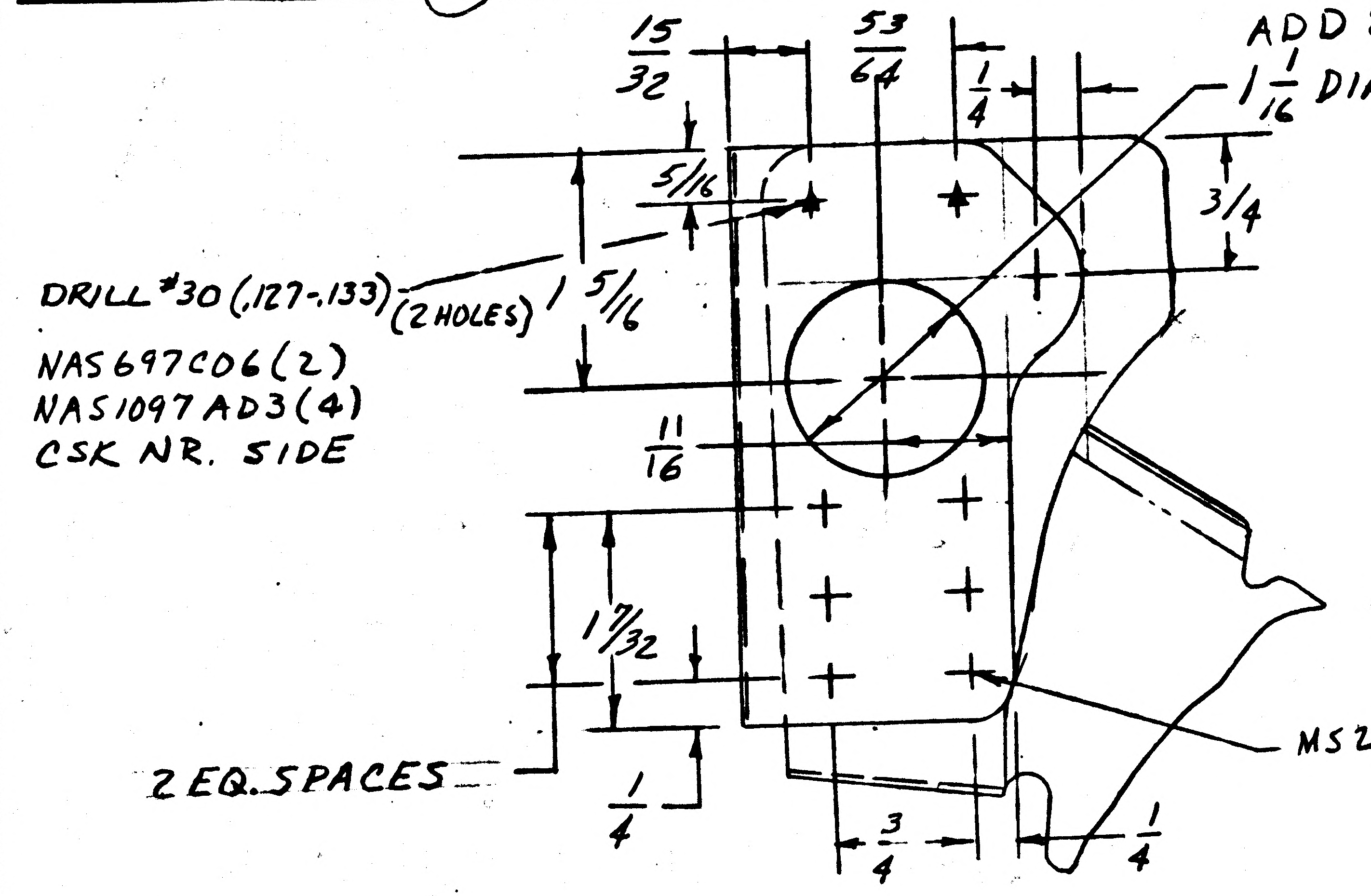
ENG 32.2 REV 3-65

RELEASED BY LIAISON R

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18279		EO NO. A5
CONTROL INFO NO. LM 5-13383		



ADD: ON-3
1 1/16 DIA HOLE

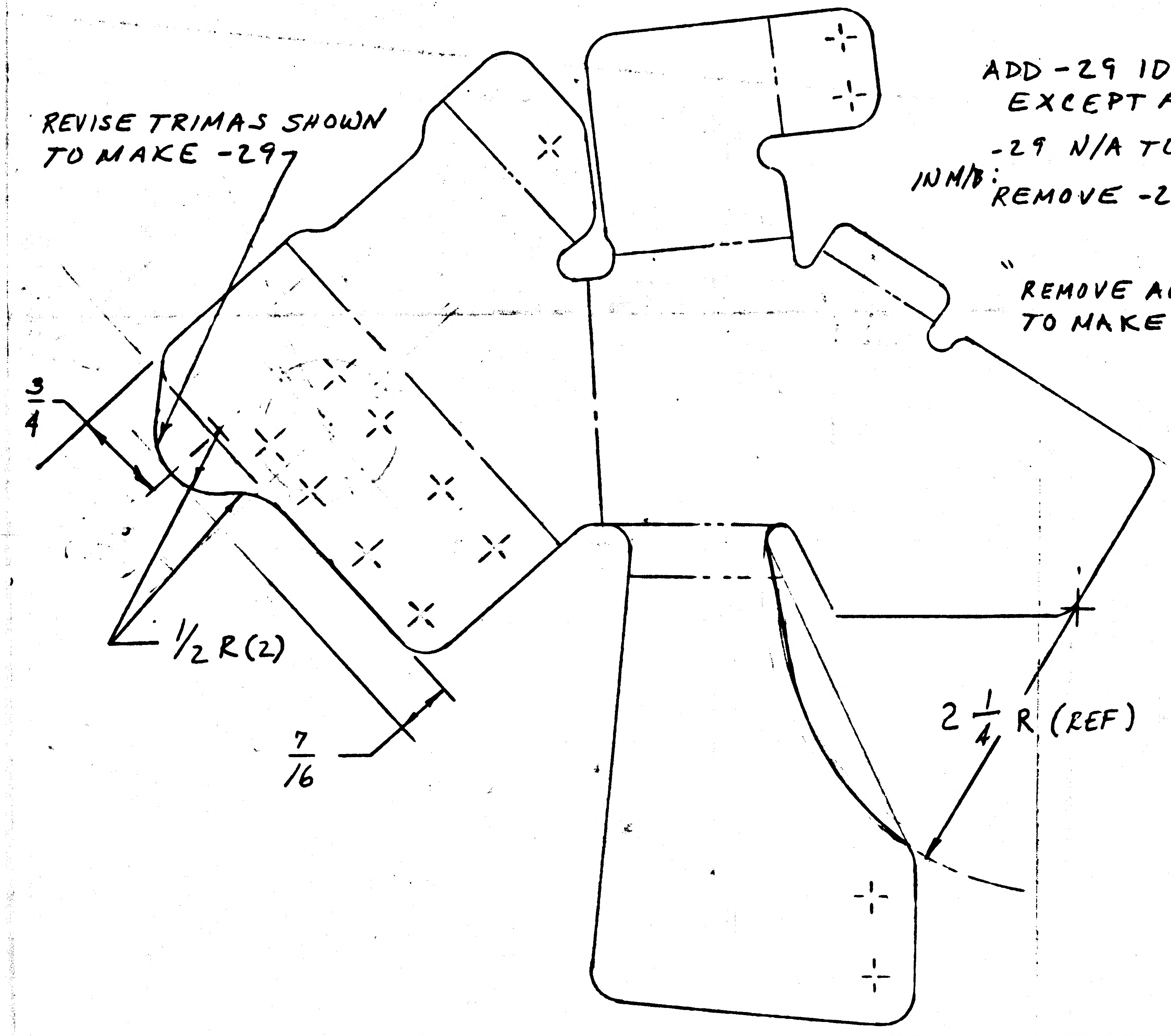
DRILL #30 (.127-.133) (2 HOLES)
NAS697C06 (2)
NAS1097AD3 (4)
CSK NR. SIDE

2 EQ. SPACES

MS20470AD3 (7)

IN F/D BM & M/B:
ADD -3 ASSY IDENT.
TO -1 EXCEPT AS
SHN.

IN M/B REMOVE -1 ASSY
LM1(31) THRU15(45)
ADD: -3 -LDW280-51555
LM1(31) THRU15 CK



REVISE TRIMAS SHOWN
TO MAKE -29

ADD -29 IDENT TO -25
EXCEPT AS SHN
-29 N/A TO -3 ASSY.
IN M/B: REMOVE -25 REQMTS.

"REMOVE ALL #40 HOLES
TO MAKE -29"

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO FACILITATE INSTL OF SLA SWITCH WIRING	IN FD BM & M/B ADDED -3 ASSY REMOVED -1 ASSY IN F/D & B/M ADDED -29, REMOVED -25	JK 5 C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 1 (31)	THRU 15 (45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-25 ✓

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
	WT			~	PBS	EWB	DAME	JRP
DATE	5/15/67			~	5/15/67	5/15/67	5-18-67	5/15/67
	1 VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S-LM-SPCRFT-RECEPTACLE	LDW280-18279	A5

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

ENG 32.1 REV 3-65

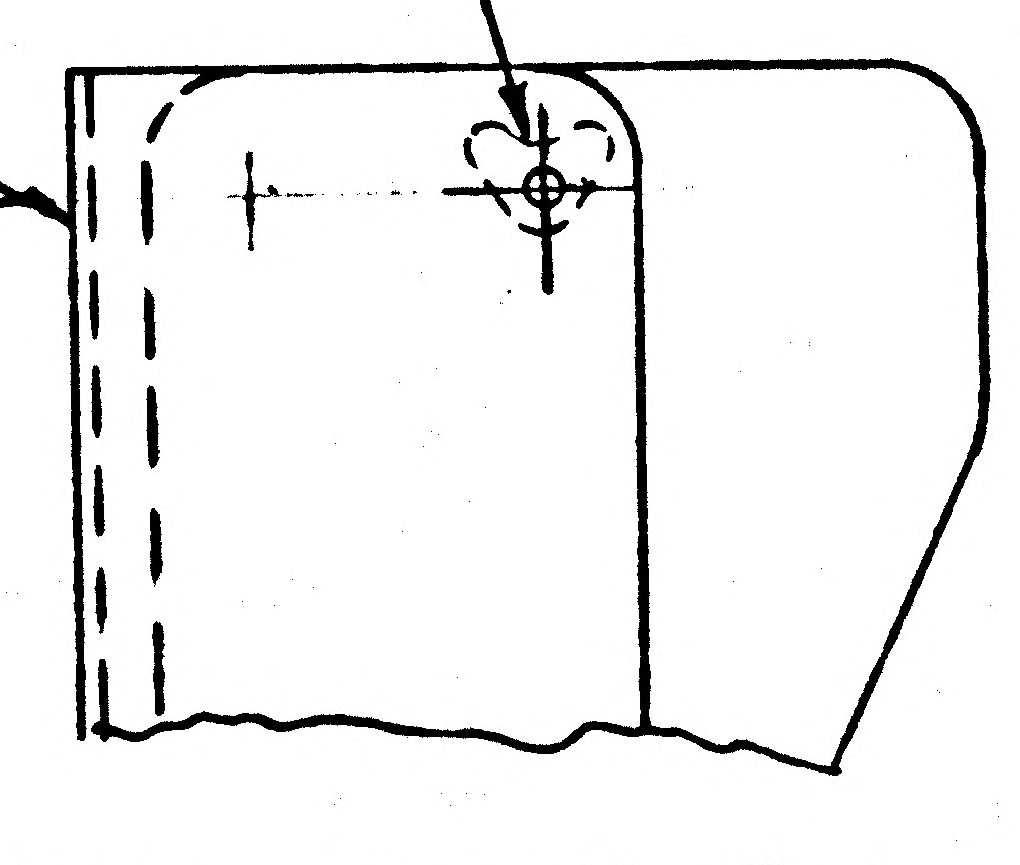
B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 6512
ENGINEERING ORDER

*

DWG NO. LDW280-18279	EO NO. A6
CONTROL INFO NO. LM-5-15584	

THIS IS A REVISION OF E.O. A5
NAS 698C06 WAS NAS697C06
FLUSH PLUG EXISTING HOLES
WITH NAS1097AD3 MATERIAL



LDW280-18279-29

LDW280-18279-3

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE CLEARANCE ON INSTL.	REF E.O. A5 DN-3 NAS 698C06(1) WAS NAS697C06(1).	C JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		APPROVED BY				—		CH		
				DATE	7/21/67			—	7/12/67	7-12-67	7/21/67	7/13/67
REVISE DWG	RECORD EO	REWORK	SCRAP		VDE	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S-SLA ANTENNA SW. SUPPORT	LDW280-18279	A6

ISSUED BY LIAISON J. JARVIS SECTION V.D.I. GROUP NO. 335 PL 5

01

NAS 9-1100

B

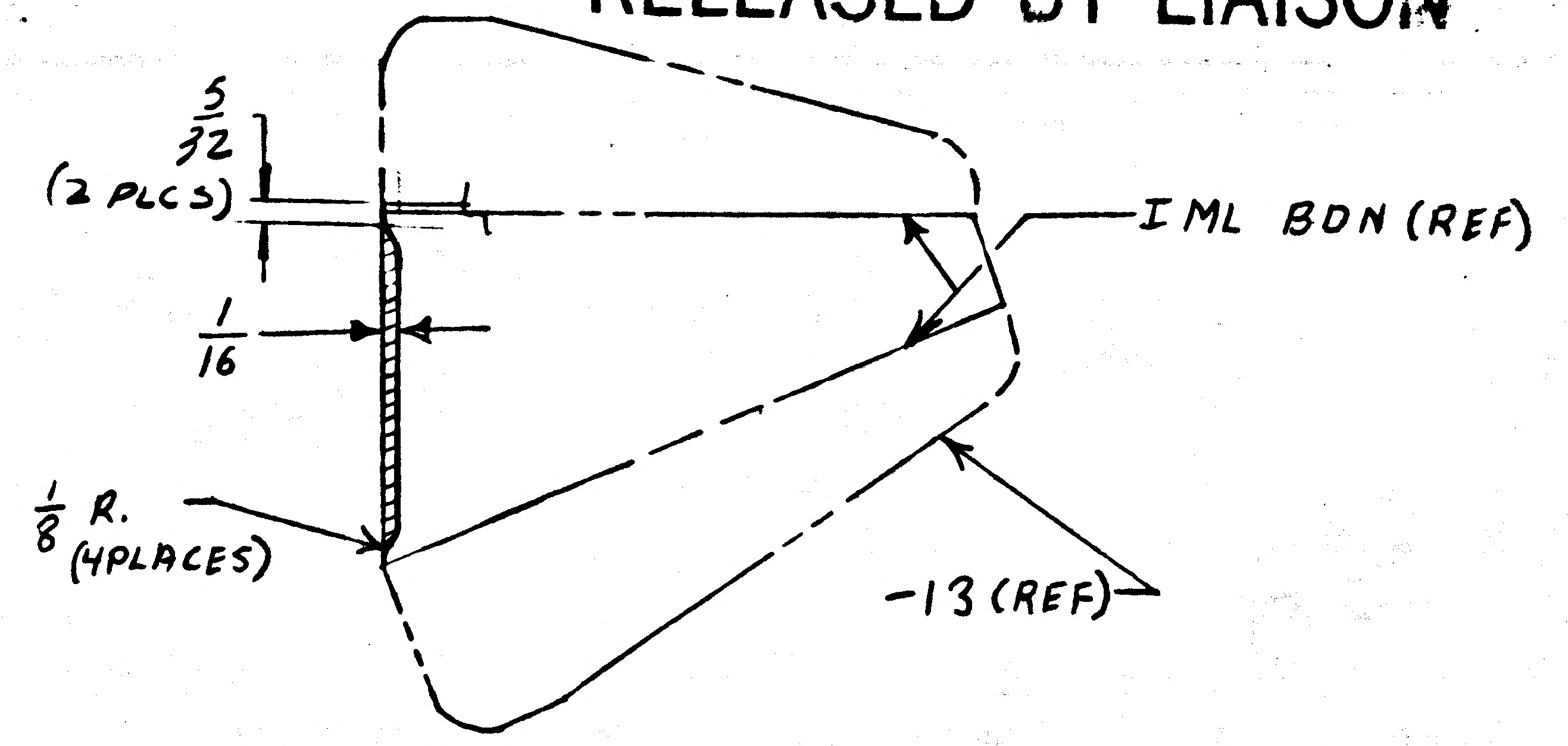
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18279
EO NO. A7
CONTROL INFO NO. LMS-15998

TRIM -13 IN SHADED AREA AS SHOWN.

RELEASED BY LIAISON



(DIMENSIONS FOR DRAFTING PURPOSES ONLY. DO NOT INCLUDE ON DRAWING)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO
TRIM PART TO PROVIDE CLEARANCE (FOR INSTL OF TRANSDUCER)

DESCRIPTION OF EO
IN FLD. TRIMMED -13.

GAEC EO RELEASE C
5
JK
05 025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	8/15/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					=	JFJ	CH	WRB	
DATE		8/21/67			=	8-16-67	8-16-67	8/21/67	8/ /67

PRIORITY C

DRAWING TITLE BRACKET ASSY. DESCENT STAGE-LM-SLA ANTENNA SWITCH SUPPORT

DRAWING NO. LDW280-18279

EO NO. A7

ISSUED BY LIAISON M. Reyes / S.G. X86757 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18279
EO NO. A8
CONTROL INFO NO. LM 5-16132

THIS IS A REV. OF EO A7

TRIM -13 S/B TRIM -27

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

5

REASON FOR EO: TRIM PART TO PROVIDE CLEARANCE (FOR INSTL. OF TRANSDUCER)

DESCRIPTION OF EO: REF EO: A7
TRIM -27 WAS TRIM -13

GAEC EO RELEASE: JK 32 05

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
		THRU	
		LM-15 (45)	

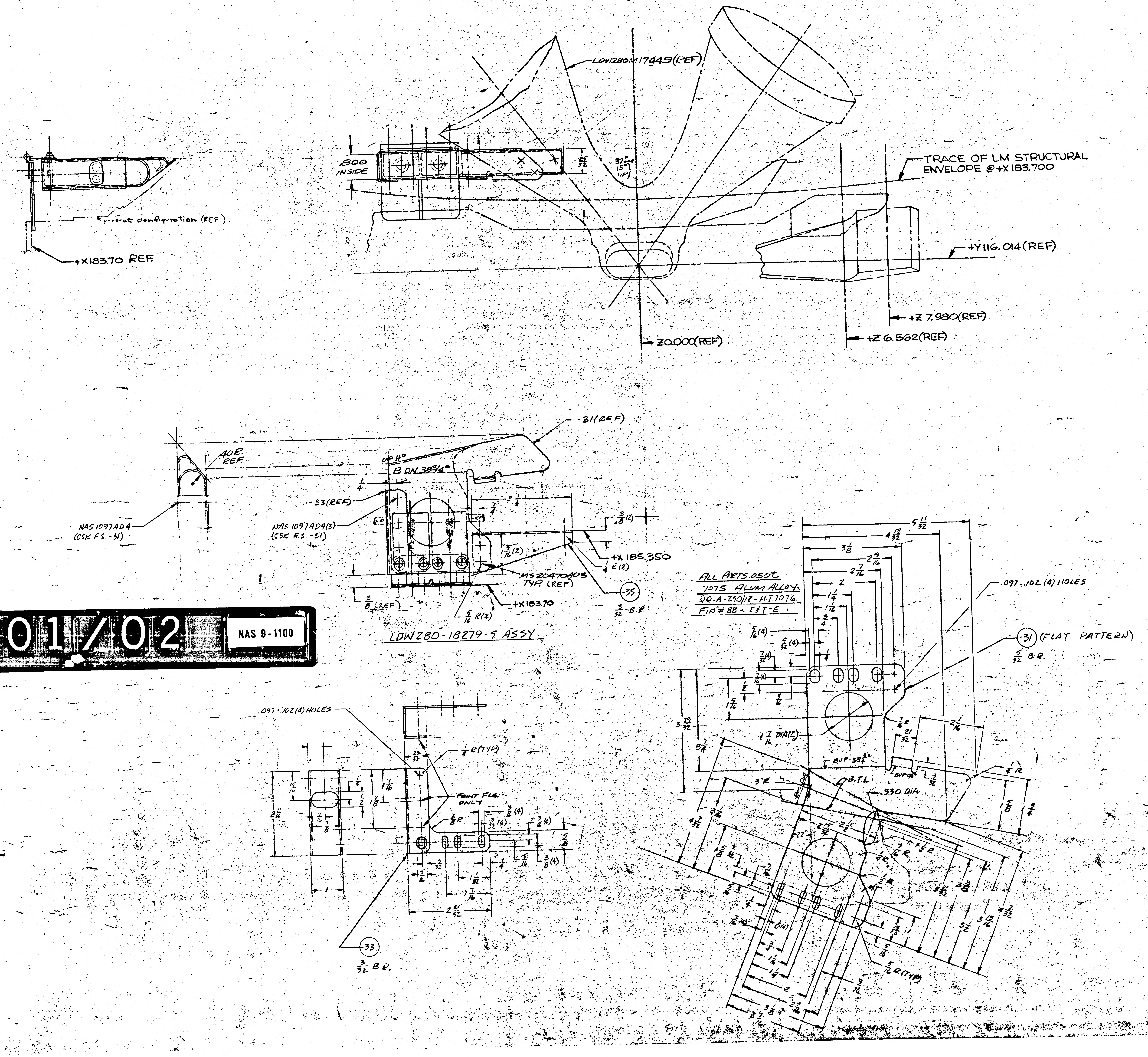
DRAWING CHANGE REQD: REVIS DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	Jap			—		CH		
DATE 8/29/67	9/1/67			—	9/1/67	9-1-67	9/1/67	9.5.67

PRIORITY C
DRAWING TITLE BRACKET ASSY D/S~LM~SLA ANTENNA SWITCH SUPPORT
DRAWING NO. LDW280-18279
EO NO. A8

ISSUED BY LIAISON MD.REYES/S.G. X86757 SECTION VDI/J.STRAKOCH GROUP NO. 335 PL 25

01 NAS 9-1100


LDW280M17449(REF)
.800 INSIDE
37° 15° UP
TRACE OF LM STRUCTURAL ENVELOPE @+X183.700
present configuration (REF)
+X183.70 REF.
+Y116.014(REF)
+Z 7.980(REF)
+Z 6.562(REF)
Z0.000(REF)
-31(REF)
.40 R. REF.
UP 11°
B DN 38 3/4°
-33(REF)
NAS 1097AD4 (CSK F.S. -31)
NAS 1097AD4(3) (CSK F.S. -31)
MS20470AD3 TYP. (REF)
+X 185.350
+X183.70
1/4 E(2)
3/8 (REF)
5/16 R(2)
-35
3/32 B.R.
LDW280-18279-5 ASSY
.097-.102(4) HOLES
1/4 R(TYP)
FRONT FLG. ONLY
-33
3/32 B.R.
ALL PARTS .050t
7075 ALUM ALLOY
QQ-A-250/12-H.T.T.076
FIN #88 ~ I & T.E.
.097-.102 (4) HOLES
-31 (FLAT PATTERN)
5/32 B.R.
1 7/16 DIA(2)
B UP 38 3/4°
B UP 11°
3/4 R
B.T.L.
3 R
.330 DIA
5/16 R(TYP)
5 11/32
4 13/32
3 1/8
2 9/16
2 7/16
3 29/32
3 1/4
4 1/2

01/02

NAS 9-1100

ADD -31, -33 & -35, MS20470AD3(4), A
N/A LDW 280-51555 (1 REQD
REMOVE -3 ASSY EFF LM-1 THRU

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG

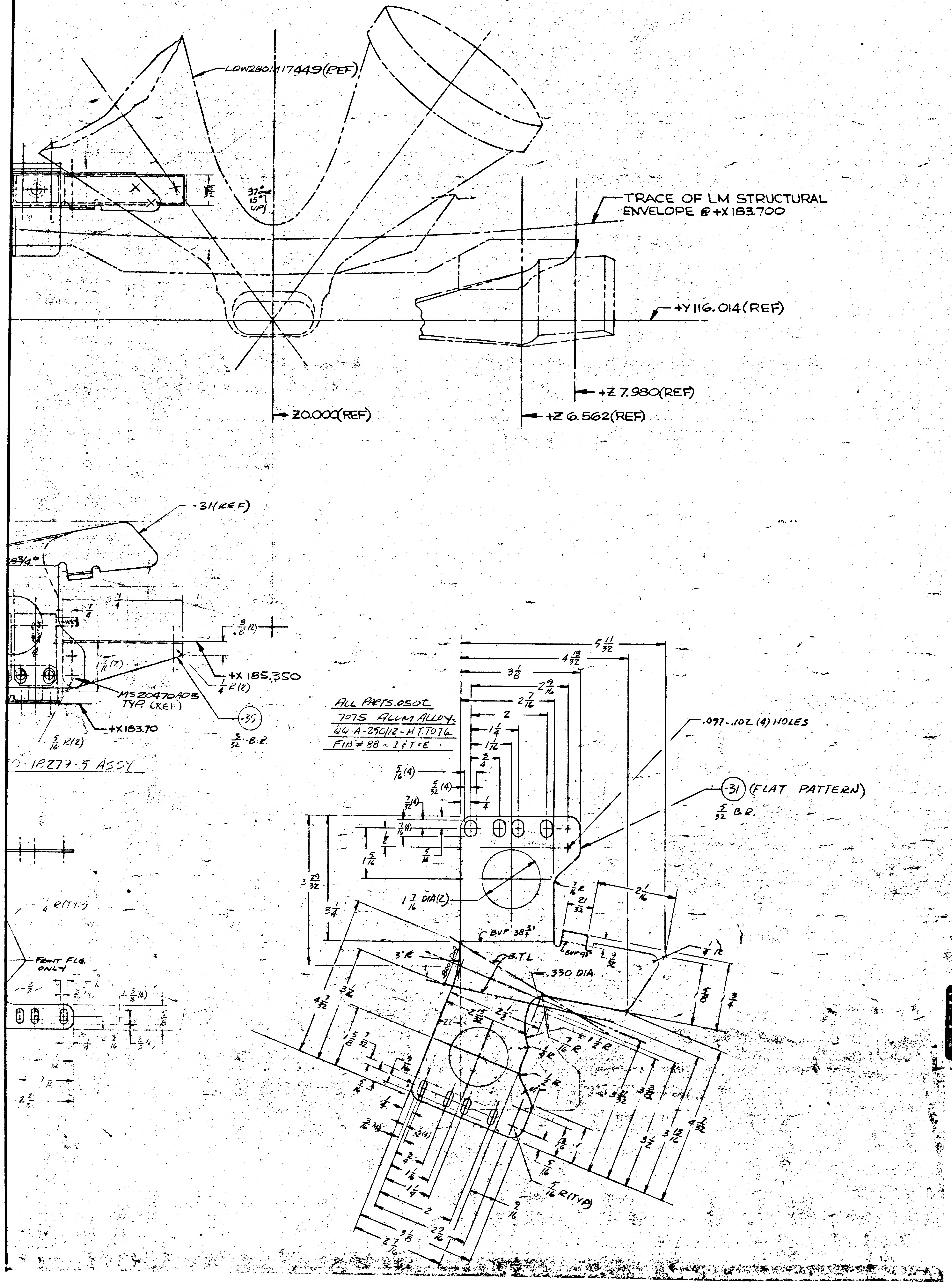
REASON FOR EO

REMOVE EXISTING INTERFERENCE WITH SLA

MODEL	EFFECTIVITY ~~PROCURING ACT. NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO
LM	LAV 73	LM-3	
		THRU	
		LM-15 (45)	

ISSUED BY STAMRES SECTION VDI 7033 GROU

ENG 32 3 REV 3-65


LDW280M17449(REF)
37½°
15°
UP
TRACE OF LM STRUCTURAL ENVELOPE @+X183.700
+Y116.014(REF)
+Z 7.980(REF)
Z0.000(REF)
+Z 6.562(REF)
-31(REF)
+X 185.350
MS20470AD3 TYP. (REF)
+X183.70
-35
3/32 B.R.
5/16 R(2)
D-18279-5 ASSY
ALL PARTS .050T
7075 ALUM ALLOY
QQ-A-250/12 - H.T. TO T6
FIN # 88 - I & T-E
.097-.102 (4) HOLES
-31 (FLAT PATTERN)
5/32 B.R.
5 11/32
4 19/32
3 1/8
2 7/16
2 9/16
2
1 1/4
1 1/16
3/4
1/4
5/16 (4)
5/16 (4)
1 7/16 DIA(2)
3 29/32
3 1/4
21/32
2 1/16
BUP 38½°
BUP 90°
B.TL
.330 DIA
3/32
FRONT FLG. ONLY
5/16 R(TYP)
3/8 R
3 1/8
2 7/16
2 9/16
3 1/2
4 1/2
3 3/16
3 1/2
1 1/4
1 3/4

ADD -31, -33 & -35, MS20470AD3(4), NAS1097AD3(4) CREATING -5 ASSY.
N/A LDW 280-51555 (1 REQD MOD) EFF LM-1(31) ~~THRU~~ LM-15(45) I & T=E
REMOVE -3 ASSY EFF LM-1 THRU LM-15.

02/02 NAS 9-1100

LFM

FINAL SHEET SIZE AREA 36X48 = 12 SQ FT
½ SIZE SHEET AREA (¼ OF FULL) = 3 SQ FT

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG	✓	LCD-2319	CONTROL INFO NO. LDW280B0219

REASON FOR EO: REMOVE EXISTING INERFERENCE WITH SLA

DESCRIPTION OF EO: ADDED -5 ASSY N/A -3 ASSY FOR LM1(31) THRU 15(45).

GRUMMAN EO RELEASE: JK 11-1-67

MODEL	~~PROCURING ACT. NO.~~ E.I.	EFFECTIVITY GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 73	LM-1 (31)	
		THRU	
		LM-15(45)	

DRAWING REVISION REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	BY / DATE	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	
✓			-3	B VDI			11-1-67	11-1-67	RP FOR HSG PROJ KSC	11-1-67	Bott. 11-2-67

PRIORITY: C

DRAWING TITLE: BRACKET ASSY D.S. ~LM~ SLA ANTENNA SWITCH SUPT

ENGINEERING ORDER

DRAWING NO: LDW280-18279

EO NO.: A9

ISSUED BY S TAMRES SECTION VDI X 7033 GROUP NO. 335 PL 25

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32 3 REV 3-66

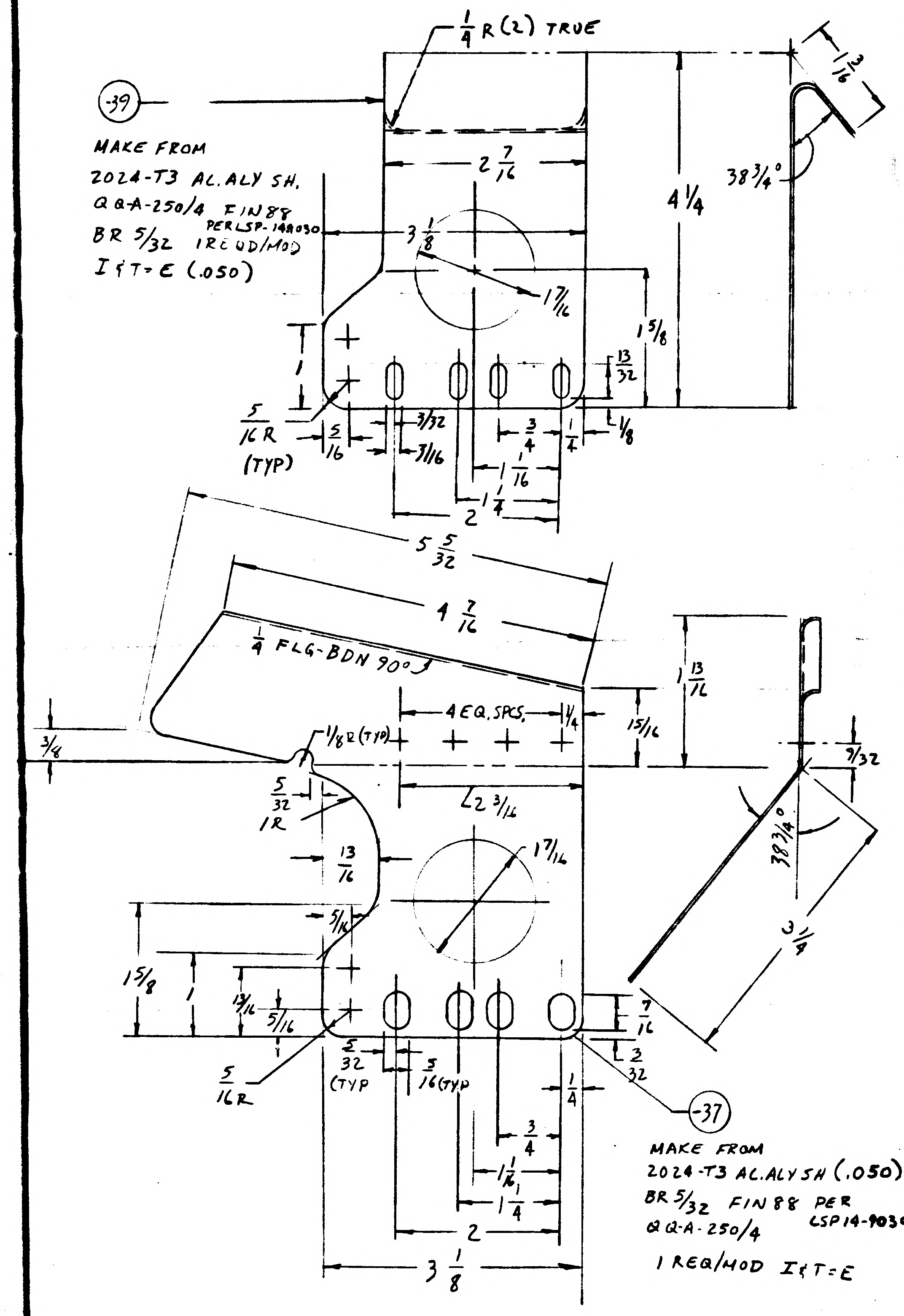
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO.	LDW280-18279
EO NO.	A10
CONTROL INFO NO.	LDW280 30253

THIS IS A REV OF EO A9

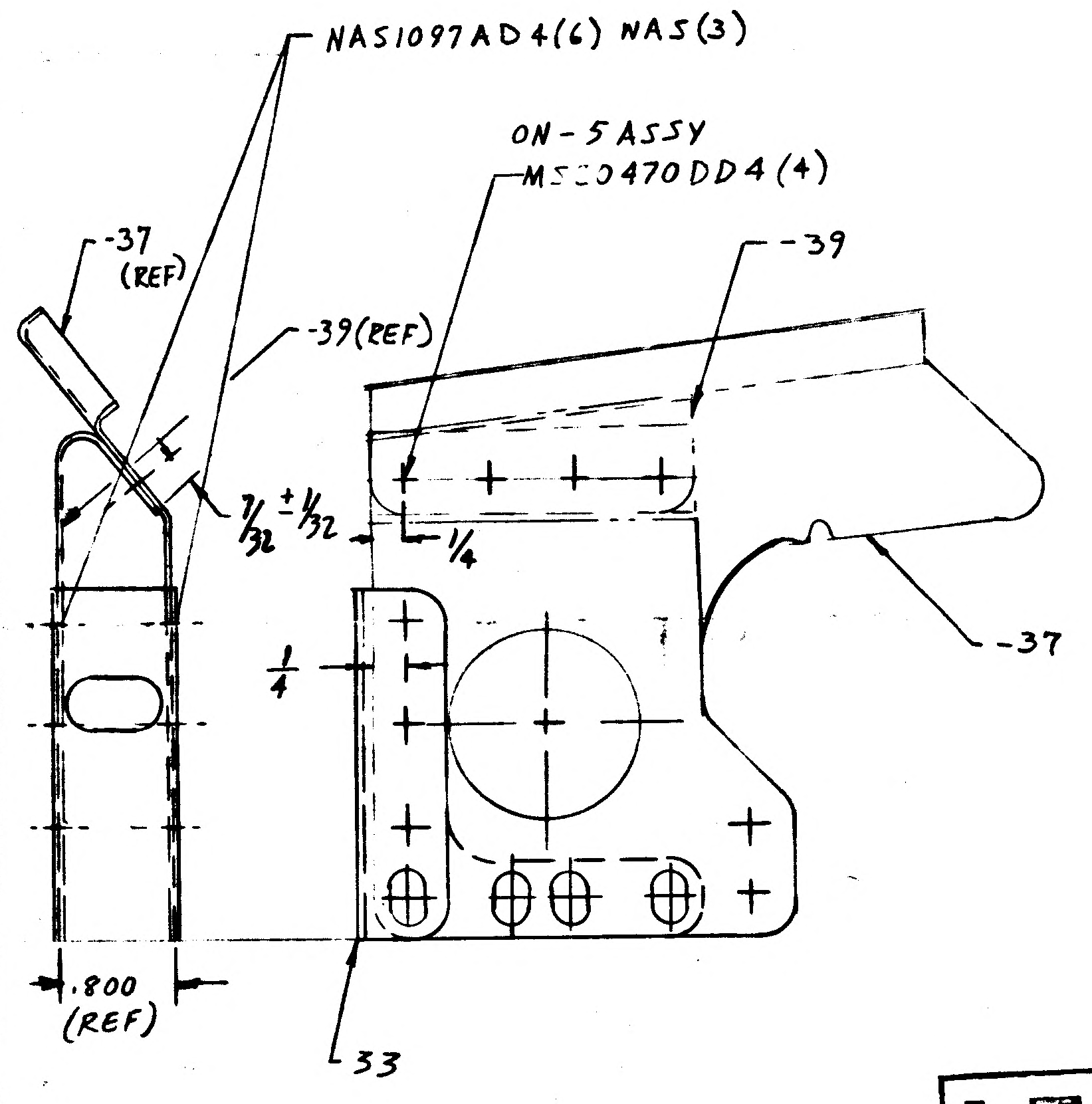
ON-5 ASSY ADD -37, -39 WAS -31 AS SHOWN:



-39
1/4 R (2) TRUE
2 7/16
3 1/8
17/16
4 1/4
38 3/4°
1 3/16
1 5/8
13/32
1/8
1
5/16 R (TYP)
5/16
3/32
3/16
3/4
1/4
1 1/16
1 1/4
2
5 5/32
4 7/16
1/4 FLG-BDN 90°
1 13/16
4 EQ. SPCS.
1/4
15/16
3/4
1/8 R (TYP)
5/32 1R
2 3/16
13/16
17/16
5/16
1 5/8
1
13/16
5/16
5/16 R
5/32 (TYP)
5/16 (TYP)
7/16
3/32
9/32
38 3/4°
3 1/4
1/4
3/4
1 1/16
1 1/4
2
3 1/8
-37

MAKE FROM
2024-T3 AL. ALY SH.
QQ-A-250/4 FIN 88
PER LSP-14-9030
BR 5/32 1 REQD/MOD
I & T = E (.050)

MAKE FROM
2024-T3 AL. ALY SH (.050)
BR 5/32 FIN 88 PER
QQ-A-250/4 LSP 14-9030
1 REQ/MOD I & T = E



NAS1097AD4(6) NAS(3)
ON-5 ASSY
MS20470DD4(4)
-39
-37 (REF)
-39 (REF)
7/32 ± 1/32
1/4
1/4
-37
.800 (REF)
33

-5 ASSY SHN

LFM

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	✓ LCD 2319

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO FACILITATE MANUF. OF DET. PARTS.	REF EO A9 REVISED -5 ASSY: ADDED -37 & -39 MS20470DD4(4) REMOVED -31 & REVISED CALLOUT NAS1097AD4 (6) WAS (3)	C JK 11/3

MODEL	EI	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY / DATE
LM	LFM 73	LM 1 (31) THRU 15 (45)		✓ REVISE DWG	-31 SCRAP	B VD1 11/2/67

	GROUP LEADER	STRESS GROUP	ENGRG	PROJ ENGRG
	11-2-67	11/2/67		11/2/67

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO.
C	BRACKET ASSY D/S - LM SLA ANT SWITCH SUPT.	LDW280-18279	A10

11367
ISSUED BY DON RAGAS X1153 SECTION VD1 GROUP NO. 335 PL 25

5

01

NAS 9-1100

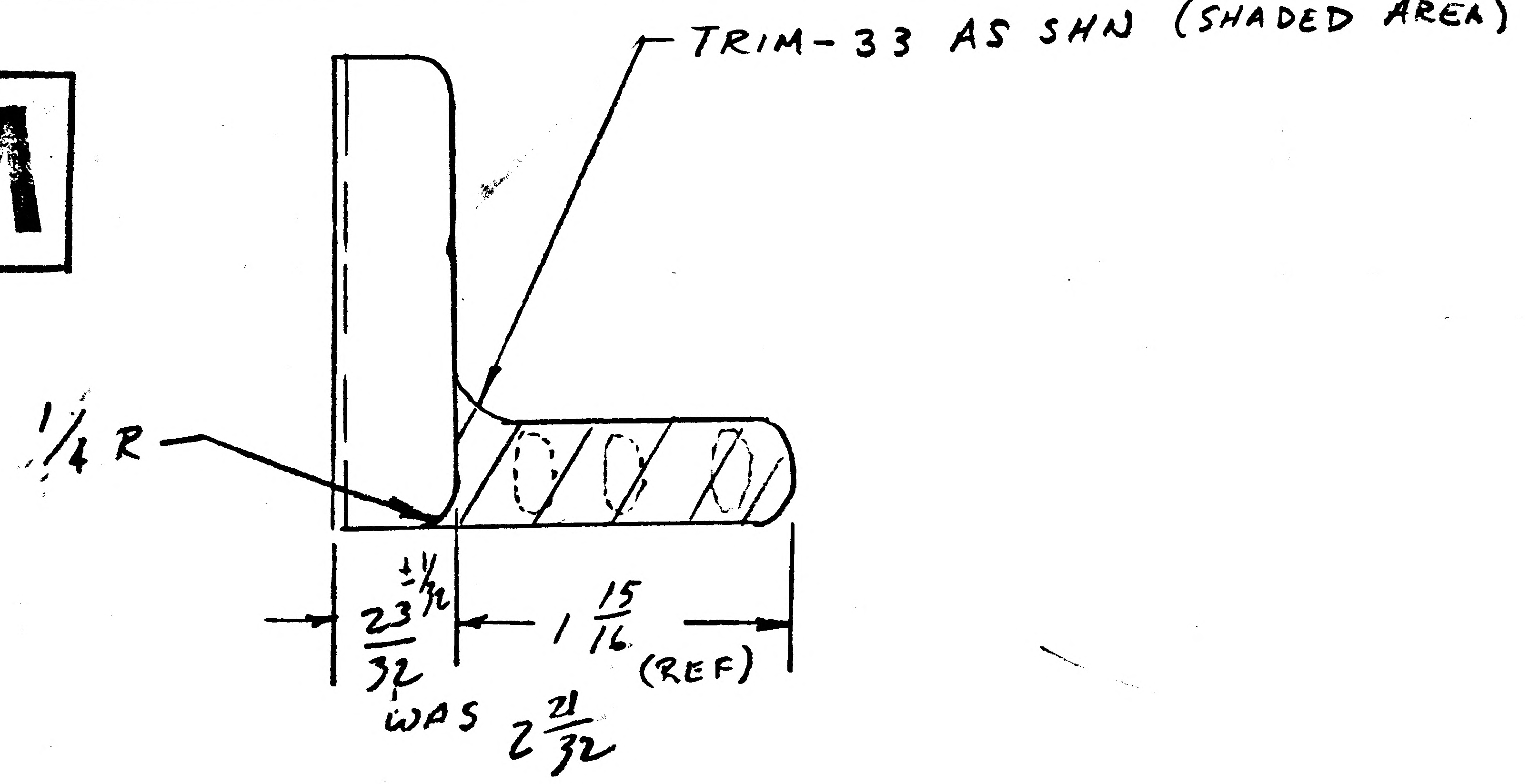
B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280 18279		EO NO. B1
CONTROL INFO NO. LDW280B0293		

LFM



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2319

(5)

REASON FOR EO: TO FACILITATE ASSY OF DET. PARTS

DESCRIPTION OF EO: TRIMMED -33 $\frac{23}{32} \pm \frac{1}{32}$ WAS $2\frac{21}{32}$

GAEC EO RELEASE: JC 11/6/67

MODEL	EFFECTIVITY		
	~~PROCURING ACTIVITY~~ EI NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 73	LM1 (31)	THRU 15 (45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY					WPB		WPB	
✓		✓		DATE	11/4/67			11-4-67	11/4/67		11/4/67	11-4-67
				E	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET ASSY D/S- LM SLA ANT. SWITCH SUPT	LDW280-18279	B1

11-6-67
ISSUED BY DON RAGAS X1153 SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

A

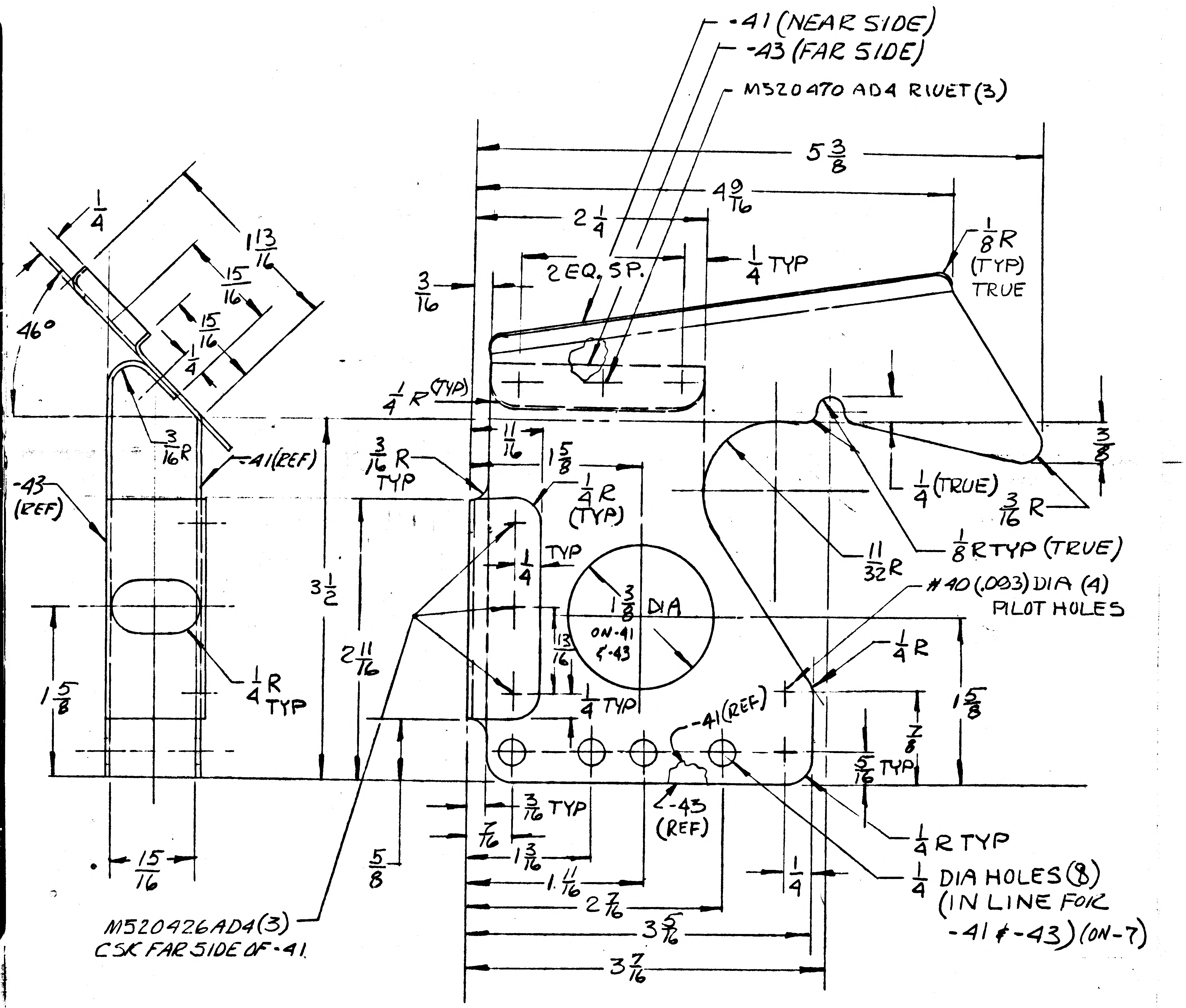
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18279		EO NO. C1
CONTROL INFO NO. LDW280B0303		

ADD -7 ASSY AS SHOWN & REMOVE -5 ASSY, -37 & -39
EFF FOR -7 LM-2(32) THRU LM-15(45) N/A LDW280-51555 1 REQD/MOD
REMOVE FROM -5 LM2 THRU 15 EFF.
(-5 CONTAINS -37 & -39 DETAIL PARTS).

MAKE -41 & -43 FROM .050 AL ALLOY SH. QQ-A 250/4 2024-0 HT-T3
FIN. 88 & SEE NOTE #1 BEND R $\frac{3}{32}$ EXCEPT AS SHOWN



-41 (NEAR SIDE)
-43 (FAR SIDE)
MS20470 AD4 RIVET (3)
5 3/8
4 9/16
2 1/4
2 EQ. SP.
1/4 TYP
1/8 R (TYP) TRUE
3/16
1/4 R (TYP)
3/8
1/4 (TRUE)
3/16 R
11/32 R
1/8 R TYP (TRUE)
#40 (.093) DIA (4) PILOT HOLES
1/4 R
1 5/8
7/8
5/16 TYP
1/4 R TYP
1/4 DIA HOLES (8) (IN LINE FOR -41 & -43) (ON -7)
11/16
1 5/8
3/16 R TYP
1/4 R (TYP)
TYP
1/4
1 3/8 DIA
ON -41 & -43
13/16
1/4 TYP
-41 (REF)
-43 (REF)
3 1/2
2 11/16
3/16 TYP
7/16
1 3/16
1 11/16
2 7/16
3 5/16
3 7/16
1/4
5/8
M520426AD4(3) CSK FAR SIDE OF -41.
1/4
1 13/16
15/16
15/16
1/4
46°
3/16 R
-41 (REF)
-43 (REF)
1/4 R TYP
1 5/8
15/16

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2319	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INCORRECT DETAIL PART DIM'S	ADDED-7, REMOVED -5, -37 & -39. FOR LM-2 THRU LM-15	JK 11/18/67

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS										
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			✓	DATE	11/16/67			11-16-67	11/16/67		11/16/67	11-18-67
LM		LM-2(32) THRU	LM-15(45)	REVISE DWG	RECORD EO	REWORK	SCRAP	B	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET ASSY-DESCENT STAGE LM-SLA ANTENNA SWITCH SUPPORT	LDW280-18279	C1

11/27
ISSUED BY J. ANDERSEN / P. THORJUSEN SECTION VD1 GROUP NO. 335 PL 25
DON RAGAS X1153

01

NAS 9-1100

A

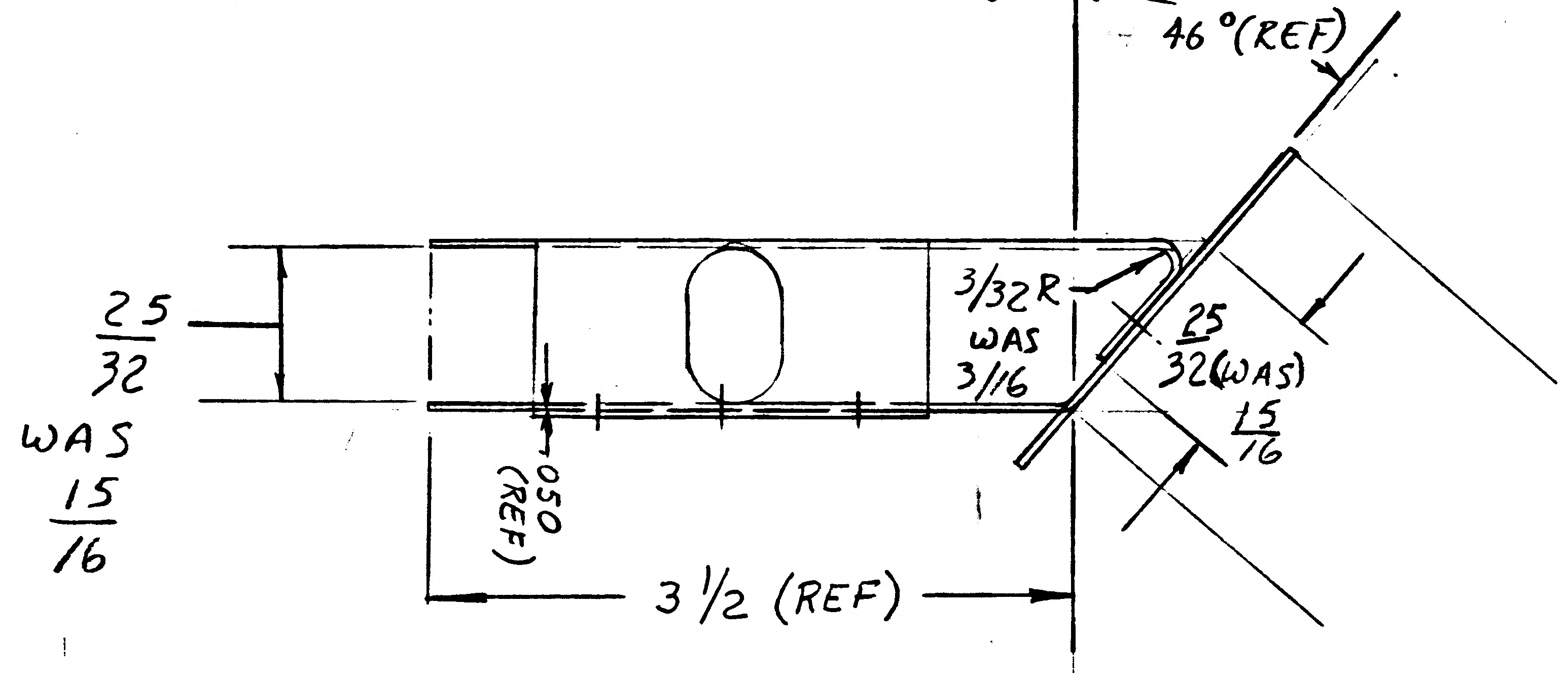
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18279
EO NO. C3
CONTROL INFO NO. LM5-13723

THIS IS A REV TO EO C1

ON-7 ASSY ADD-45 & REMOVE-43
(-45 IS IDENT TO -43 EXCEPT AS NOTED)



DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD2319

REASON FOR EO: TO CORRECT DIM ON EO TO AGREE WITH MATING PART

DESCRIPTION OF EO: REF EO C1 ON-7 ADDED -45 REMOVED -43

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2(32) THRU 15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP -43

APPROVED BY							
DATE	12-21-67			—	12/7/67	12-7-67	12-21-67	12-9-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

GAEC EO RELEASE

PRIORITY: C
DRAWING TITLE: BRACKET ASSY D/S-LM SLA ANTENNA SWT. SUPPT
DRAWING NO.: LDW280-18279
EO NO.: C3

ISSUED BY DON RAGAS / C. HEDGES X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18279
EO NO. C5
CONTROL INFO NO. LDW280B2186

IN F/D REMOVE -27 DETAIL
IN B/M & M/B REMOVE -27 CALLOUT

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2319	PKG 1 (5)

REASON FOR EO: TO REMOVE EXISTING INTERFERENCE WITH SLA

DESCRIPTION OF EO: IN F/D, B/M & M/B REMOVED -27

GAEC EO RELEASE: (5) JK 3/11/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM #73	LM-1 (31)	
		LM-2 (32) THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	3/6/68			3/6/68	3/7/68		3/7/68	3-4-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PRC ENGRG	

PRIORITY: C

DRAWING TITLE: BRACKET ASS'Y - D.S. ~ LM ~ SLA ANTENNA SWITCH SUPPORT

DRAWING NO. LDW 280-18279

EO NO. C5

3-15-68
ISSUED BY R. STOBE/P. THORJUSEN (EXT 1153) SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18280 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51555	LM-3 (33)	1
LM	LDW280-51555	LM-2 (32)	1
PART NO. LDW280-18280-7		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51555	LM-1 (31)	1
PART NO. LDW280-18280-5		GAEC SCH NO. 50-1	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-25	PRIM NO. 207	JK(001) ME-3M 11/18/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	P.CARSTENSEN 3/14/67	RELIABILITY	
LAYOUT BY	G.BARNES 3-9-67		
CHECKED BY	3-15-67		
GRP. LEADER	3/16/67		
VEH. DES. INT	3/18/67		
STRUCTURES	3/20/67	PROJ ENGR	J.G. McCloughan 3/27/67
STRUCTURES	3/20	REL GROUP	3/27/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

HINGE ASSY
DESCENT STAGE-SPACECRAFT LM ADAPTER
ANTENNA SWITCH SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18280	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

CDR 3/20/67

01

NAS 9-1100

-7	-5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1	1		MS20253P2-250	E	PIN, HINGE	STD PART						
1			LDW280-18280-25		HINGE HALF				MS20001-PY10-0300	NONE	88 SEE NOTE 2	
1	1		-23		HINGE-HALF				MS20001-PY10-0300	NONE	88 SEE NOTE 2	
	1		-21		HINGE-HALF				MS20001-PY10-0300	NONE	88 SEE NOTE 2	
			-7		HINGE ASSY					NONE	NONE	
			LDW280-18280-5	E	HINGE ASSY					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18280	A

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED SH 3 NO CHANGE LAST REV NO CHANGE-TWEEDY 11-11-68						
A	1	1.10,2.00 3.00					✓	EO A1	FOR-11 &-13 ADDED NOTE #2 ADDED SH 1.10	LM-1 THRU LM-15	✓		TWEEDY 11-11-68		
	2	1.00,2.00 3.00					✓	EO A2	IN F/D, B/M & M/B ADDED -3ASSY REMOVED -1 ASSY			-11 -13			
	3	1.00,2.00 3.00					✓	EO A3	REFERENCE EOA2 IN FLD & B/M, REMOVED -13 WAS REMOVED-12, FOR -17&-19 ADDED NOTE2			✓			
	4	2.00,3.00					✓	EO A4	REFERENCE EOA2 FOR-3ASSY MS20253P2-210 WAS MS20253P2-200, ADDED NOTE #3		✓				
	5	1.00,2.00 3.00		LFM 73 B		✓		EO A5 LCD 2319	REMOVED-15&-3ASSY ADDED -5ASSY(1 REQD/MOD N/A LDW280-51555			-3 -15			
	6	1.00,2.00 3.00		B		✓		EO A6 LCD 2319	ADDED-7ASSY&-25 EFF LM-2 THRU-15 REMOVED -5&-21 EFF LM-2 THRU-13 (-5ASSY MAY BE RWK'D INTO-7)	LM-2 THRU LM-15	NOTED				
	7	1.00		S		✓		LEO280,EO884 LCD 2685	-7 ASSY REMOVED EFF LM-4 THRU LM-5 N/A LDW 28051555	LM-4 THRU LM-15		-7	H.D		

FOR CONTINUATION OF REVISIONS SEE SHEET ______

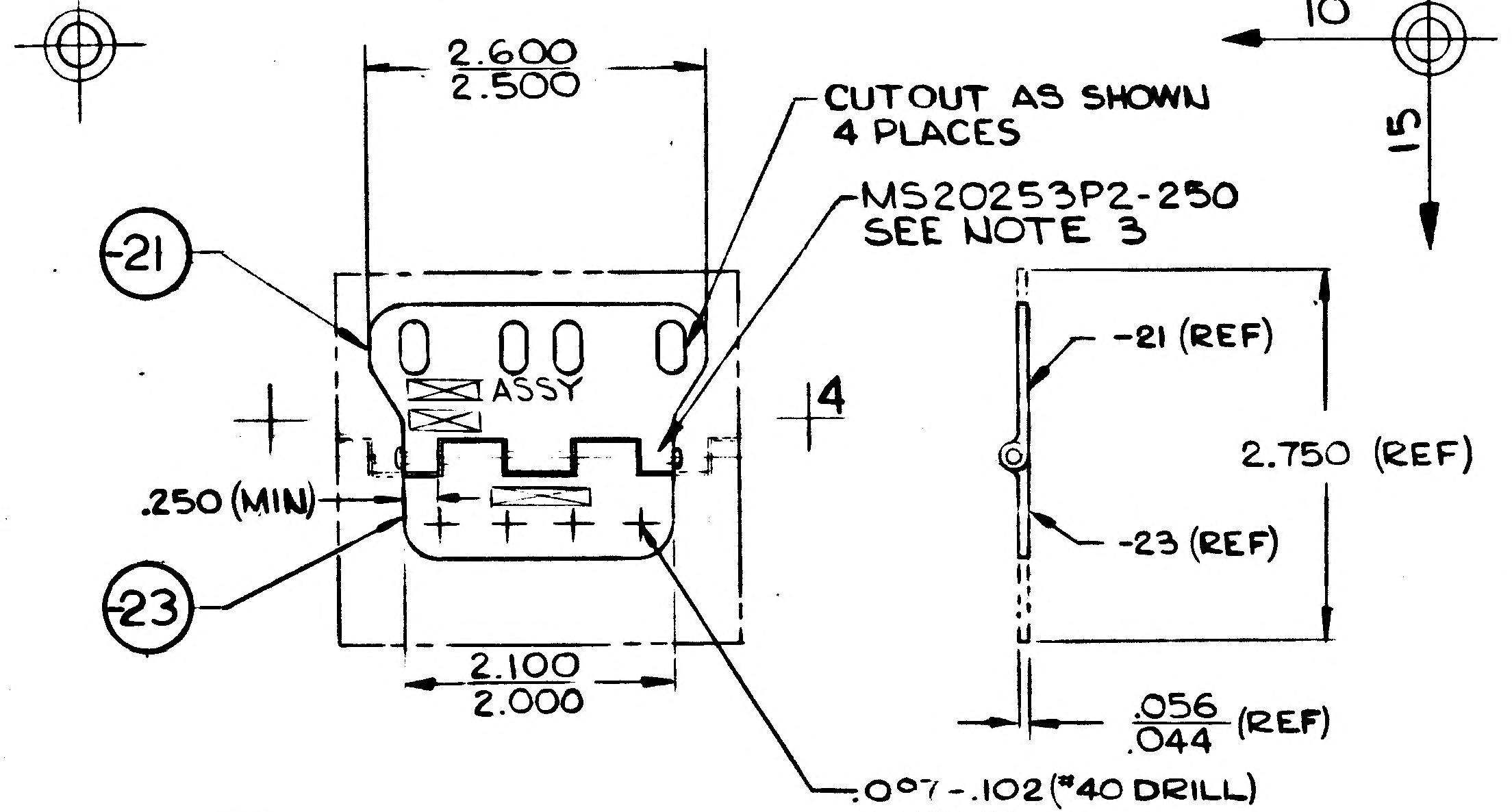
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18280	A
SCALE NONE			SHEET 1.10

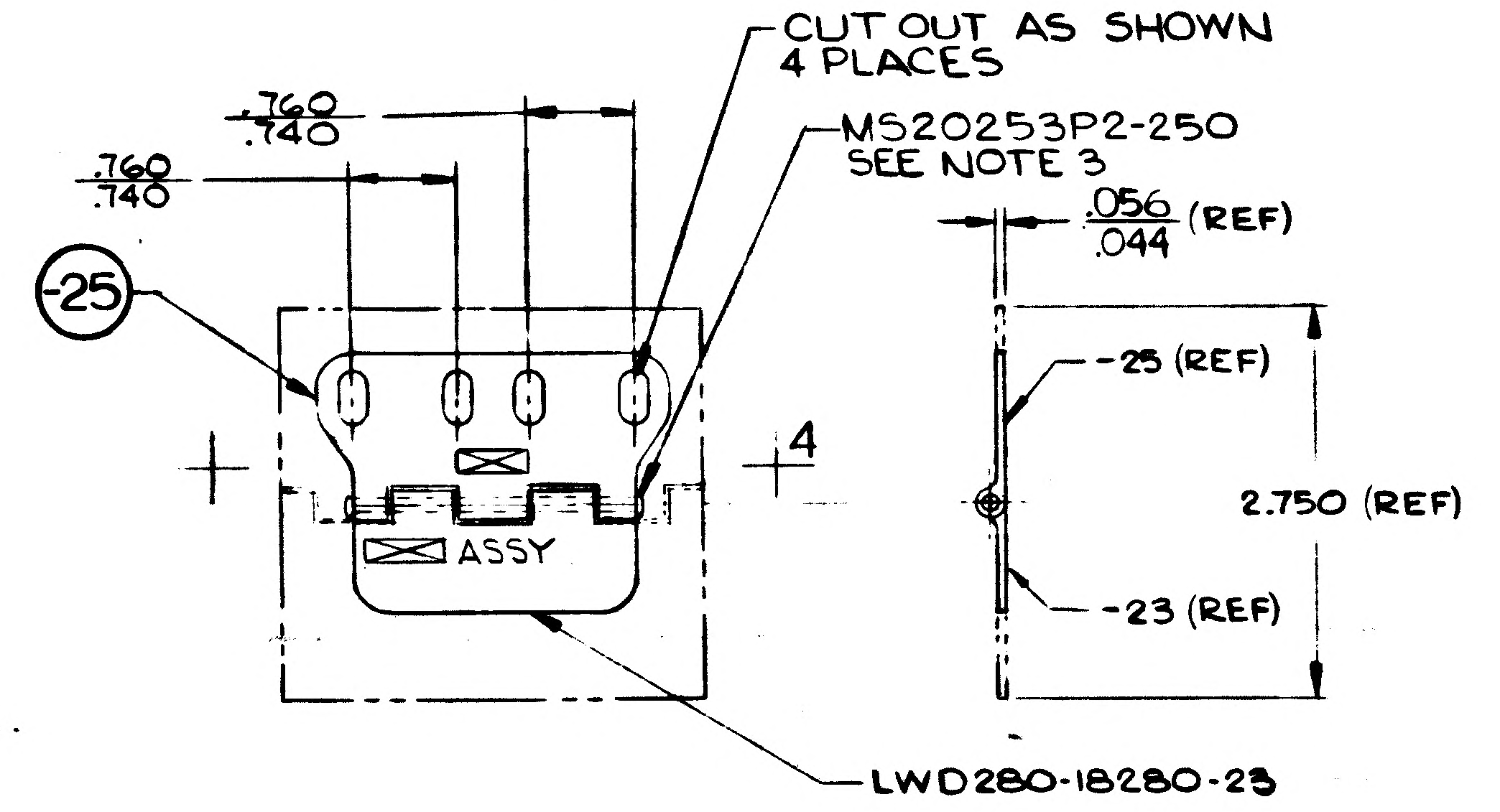
ENG 77.3 5-65

01

NAS 9-1100


2.600
2.500
CUTOUT AS SHOWN
4 PLACES
MS20253P2-250
SEE NOTE 3
-21
-23
ASSY
.250 (MIN)
2.100
2.000
.097-.102 (#40 DRILL)
4 HOLES
-21 (REF)
-23 (REF)
2.750 (REF)
.056
.044 (REF)
10
15
4

Ⓐ5 LDW280-18280-5 ASSY


CUT OUT AS SHOWN
4 PLACES
MS20253P2-250
SEE NOTE 3
.760
.740
.760
.740
.056
.044 (REF)
-25
ASSY
-25 (REF)
-23 (REF)
2.750 (REF)
LWD280-18280-23
4

Ⓐ6 LDW280-18280-7 ASSY

NOTE

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FINISH PER LSP14-10300 TYPE I.
3. AT ASSEMBLY OF HINGE. MS20253P2-250 HINGE PIN IS TO BE PEENED AT BOTH ENDS TO INSURE THAT THE PIN IS PERMANENTLY SECURED. CARE IS TO BE TAKEN TO INSURE THAT THE FREE ROTATIONAL ACTION IS UNIMPEDED.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18280	A
SCALE FULL			SHEET 3.00	

SUPERSEDES LDW280-18280 N/C 3-27-67

FOR PHOTO REPRODUCTION

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18280 | EO NO. A1
CONTROL INFO NO. LM5-13185

IN B/M IN FINISH BLOCK FOR -11 & -13 ADD (88 & SEE NOTE*) WAS (88)

ADD NOTE * TO DWG

* FINISH PER LSP14-10300 TYPE I

RELEASED BY LIAISON

* USE NEXT AVAIL NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

5
C

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PREVENT COLD WELDING	FOR -11 & -13 ADDED NOTE *	JK —

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT				JF	CH		
DATE	4/14/67				4-15-67	4-15	4-19-67	4/15/67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S SPACECRAFT LM ADAPTER HINGE ASSY ANT SWITCH	LDW280-18280	A1

ISSUED BY G. BARNES / DON RAGAS X6570 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

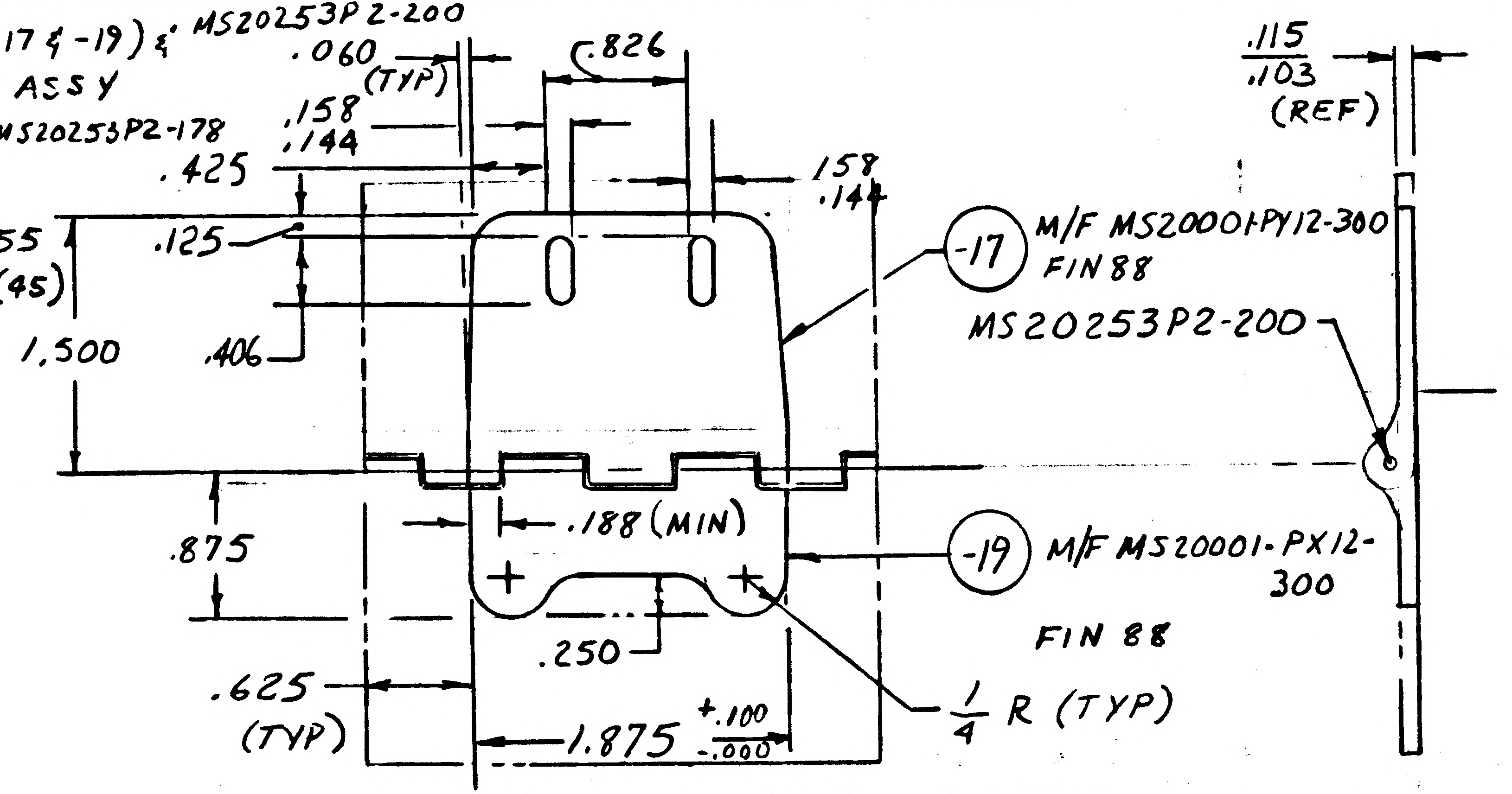
ENG 32.1 REV 3-6 RELEASED (A) BY LIAISON

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18280
EO NO. A2
CONTROL INFO NO. LMS-13384

IN F/D B/M: ADD (-17 & -19) & MS20253P2-200 TO CREATE -3 ASSY
REMOVE (-11 & -12) MS20253P2-178 & -1 ASSY

-3 N/A LDW280-51555 LM1(31) THRU 15(45)



.060 (TYP)
.826
.158
.144
.425
.125
.406
1,500
.158
.144
.115
.103
(REF)
-17 M/F MS20001-PY12-300 FIN 88
MS20253P2-200
.188 (MIN)
.875
-19 M/F MS20001-PX12-300 FIN 88
.250
.625 (TYP)
1.875 +.100 -.000
1/4 R (TYP)

ADD: -3 ASSY WAS -1 ASSY

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

REASON FOR EO: TO FACILITATE INSTL OF SLA SWITCH WIRING

DESCRIPTION OF EO: IN F/D, B/M & M/B: ADDED -3 ASSY, REMOVED -1 ASSY.

GAEC EO RELEASE: JK C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31) THRU 15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK; SCRAP -11 -13

APPROVED BY	WT			~	PBS	EWB	DAM	JPF
DATE	5/15/67			~	5/15/67	5/15/67	5-18-67	5/15/67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: HINGE ASSY D/S-SLA ADAPTER-ANT. SUPT
DRAWING NO. LDW280-18280
EO NO. A2

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5 pD

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-18280 | EO NO. A3
CONTROL INFO LM-2-3600

THIS IS A REVISION OF EO-A2

"REMOVE -12" SHOULD BE "REMOVE -13"

FOR -17 & -19, ADD "SEE NOTE *" TO FINISH COLUMN IN B/M
(NOTE *)(REF)(FINISH PER LSP14-10300 TYPE I)

* DENOTES NEXT AVAILABLE NOTE NUMBER ADDED BY EO-A1

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

2

REASON FOR EO: TO FACILITATE INSTL OF SLA SWITCH WIRING INCORRECT PART CALLOUT

DESCRIPTION OF EO: REFERENCE EOA2 IN FLD & B/M, REMOVED -13 WAS REMOVED -12. FOR -17 & -19, ADDED NOTE *.

GAEC EO RELEASE: C
JK
02131

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	Jap			~		Ctf	DAM	B.T.
DATE	7/6/67			~	17/25/67	5/24/67	5-26-67	5-25-67
-1-	UDI							

PRIORITY: C
DRAWING TITLE: HINGE ASSY~DESCENT STAGE SLA ADAPTER ANTENNA SPT.
DRAWING NO.: LDW280-18280
EO NO.: A3

ISSUED BY LIAISON J. MALONEY 5/23/67 X3604
SECTION V.D.I.
GROUP NO. 335
PL 25

01
NAS 9-1100

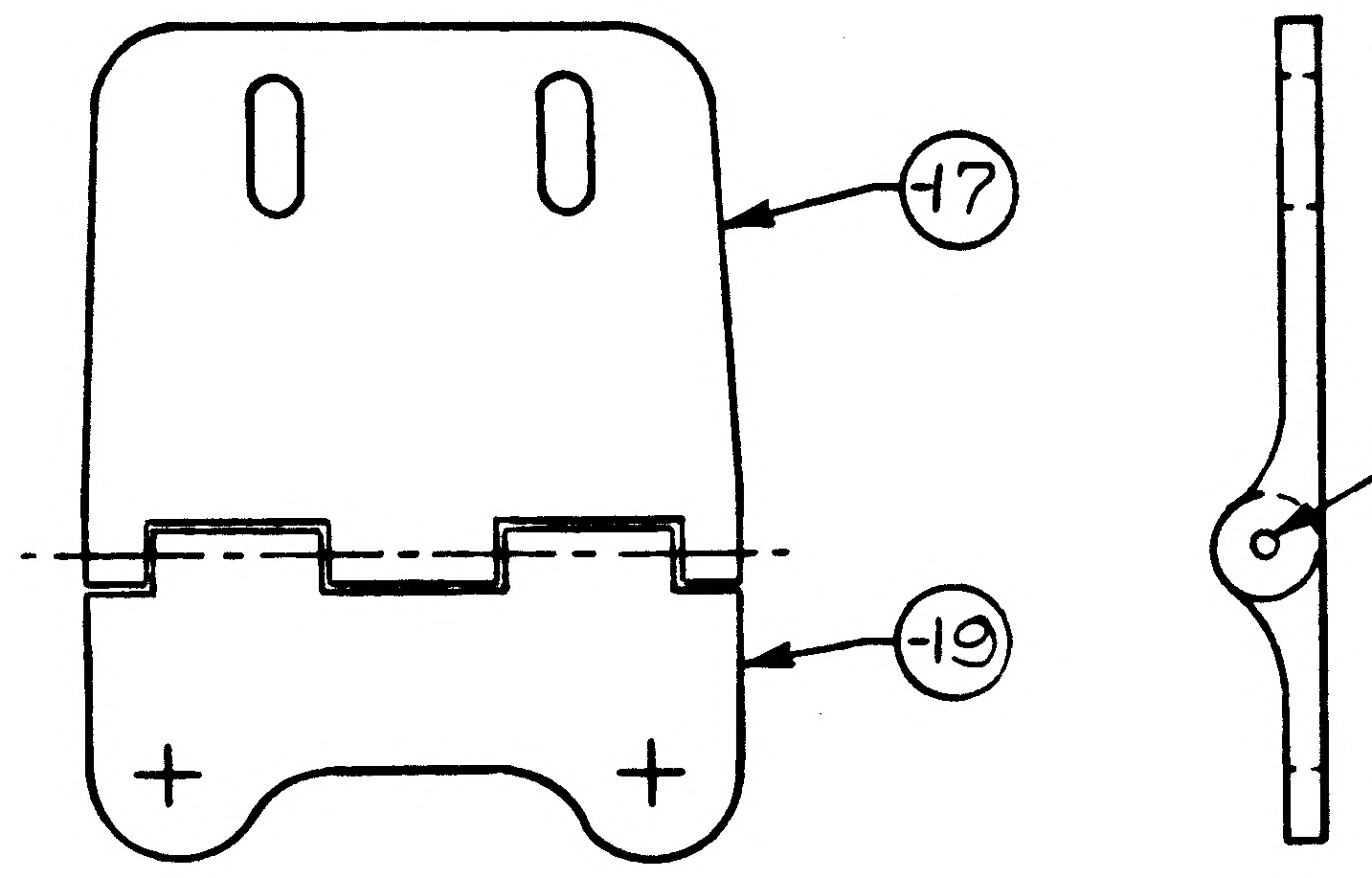
PD

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING OR

DWG. NO.	LDW280-18280	EO NO.	A4
CONTROL INFO NO.	LM-2-3645		

THIS IS A REVISION OF EO-A2



LDW280-18280-3 ASSY

ADD NOTE * TO READ AS FOLLOWS:
AT ASSEMBLY OF HINGE, MS20253P2-210 HINGE PIN IS TO BE PEENED AT BOTH ENDS TO INSURE THAT THE PIN IS PERMANENTLY SECURED. CARE IS TO BE TAKEN TO INSURE THAT THE FREE ROTATIONAL ACTION IS UNIMPEDED.

* DENOTES NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: TO FACILITATE INSTALLATION OF SLA SWITCH WIRING TO SECURE HINGE PIN

DESCRIPTION OF EO: REFERENCE EO-A2 FOR -3 ASSY, MS20253P2-210 WAS MS20253P2-200. ADDED NOTE *

GAEC EO RELEASE: JK 2 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	JaP				MBS	Ctf	WMS
DATE	6/9/67				6/15/67	6/14/67	6/14
-1-	VDI						

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	HINGE ASSEMBLY~DESCENT STAGE SLA ADAPTER~ANTENNA SUPPORT	LDW280-18280	A4

ISSUED BY LIAISON J. MALONEY 6/12/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

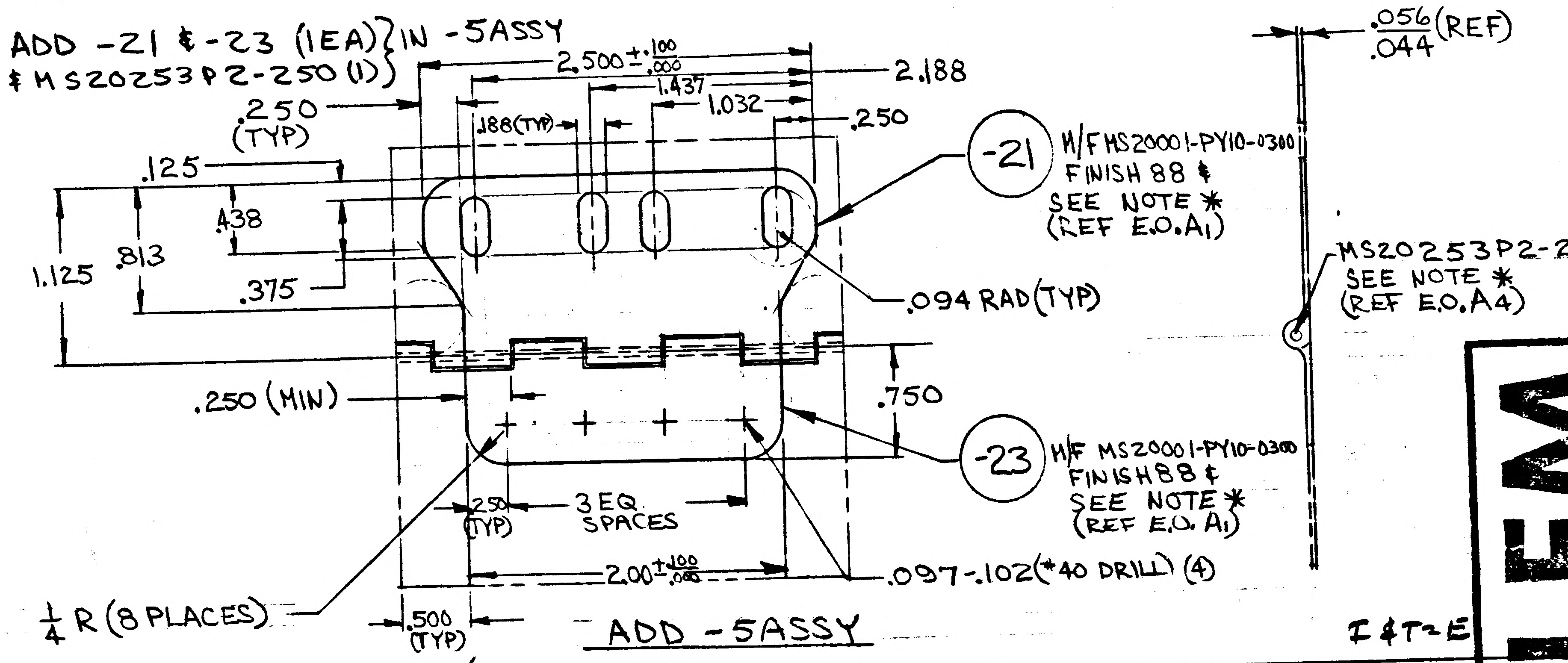
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18280		EO NO. A5
CONTROL INFO NO. LDW280B0220		

REMOVE -15 & -3 ASSY EFF. LM-1(31) THRU LM-15(45)
ADD -5 ASSY (1 REQD/MOD) EFF. LM-1(31) THRU LM-15(45) N/A LDW280-51555

ADD -21 & -23 (1EA)
& MS20253P2-250 (1) } IN -5ASSY


2.500 ±.100/.000
2.188
1.437
1.032
.250
.250 (TYP)
.188 (TYP)
.125
.438
1.125
.813
.375
.250 (MIN)
.750
.094 RAD (TYP)
-21 M/F MS20001-PY10-0300 FINISH 88 & SEE NOTE * (REF E.O. A1)
-23 M/F MS20001-PY10-0300 FINISH 88 & SEE NOTE * (REF E.O. A1)
.25 (TYP)
3 EQ SPACES
2.00 ±.100/.000
.097-.102 (#40 DRILL) (4)
1/4 R (8 PLACES)
.500 (TYP)
.056/.044 (REF)
MS20253P2-250 SEE NOTE * (REF E.O. A4)

ADD -5ASSY

I & T = E

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2319

REASON FOR EO
REMOVE EXISTING INTERFERENCE WITH SLA

DESCRIPTION OF EO
REMOVED -15 & -3 ASSY
ADDED -5 ASSY (1 REQD/MOD) N/A LDW280-51555

GAEC EO RELEASE: JK 11/2/67

MODEL	EFFECTIVITY: EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 73	LM-1(31) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY / DATE							
✓			-15 -3	11/1/67			11-1-67	11/1/67		11/1/67	11/2/67
REVISE DWG	RECORD EO	REWORK	SCRAP	B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	HINGE ASSY D/S-SLA ADAPTER - ANT SUPT	LDW280-18280	A5

DR 11267
ISSUED BY V.A. CHRISTINA / P. THORJUSEN SECTION VDI X1392 GROUP NO. 335 PL 25

01

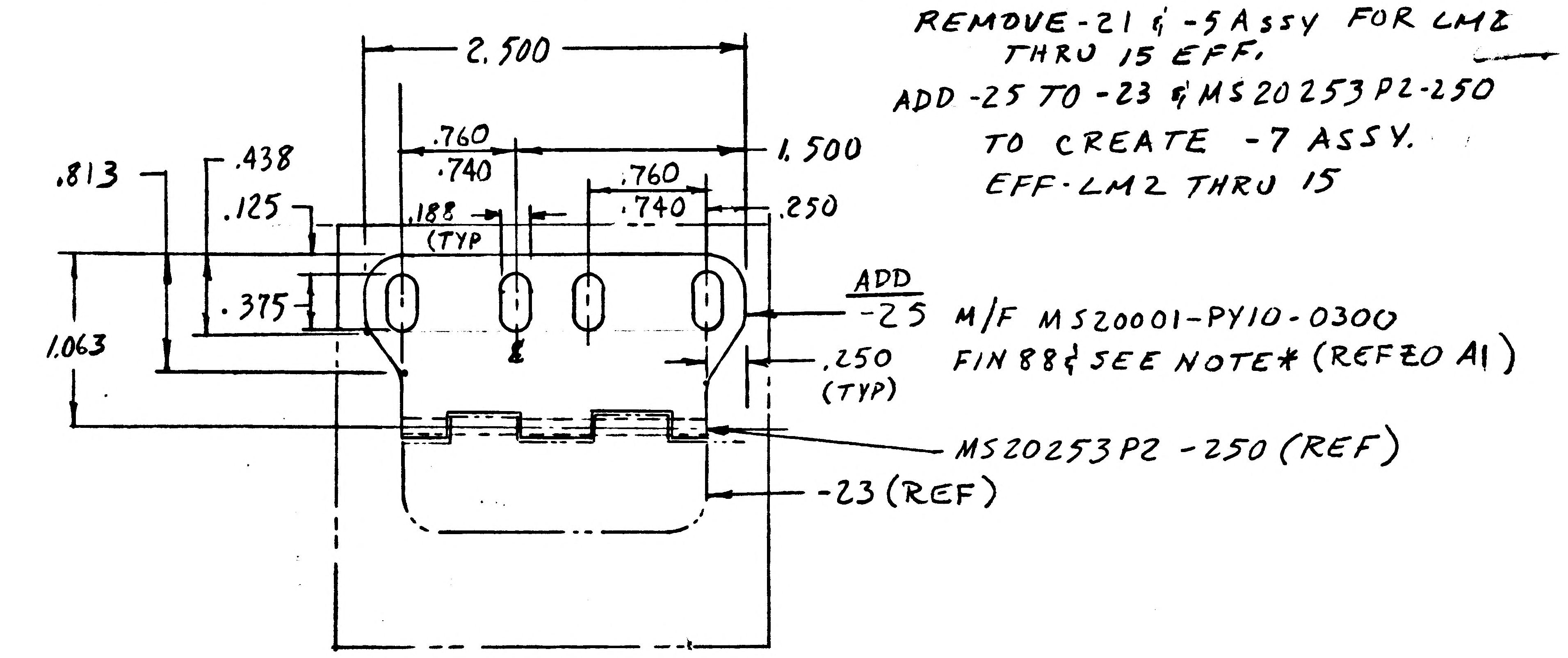
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18280		EO NO. A6
CONTROL INFO NO. LDW280B0304		

REMOVE -21 & -5 ASSY FOR LM2 THRU 15 EFF.
ADD -25 TO -23 & MS20253P2-250 TO CREATE -7 ASSY. EFF-LM2 THRU 15


2.500
.760
.740
1.500
.760
.740
.250
.813
.438
.125
.188 (TYP
.375
1.063
ADD -25 M/F MS20001-PY10-0300 FIN 88 & SEE NOTE* (REF EO A1)
.250 (TYP)
MS20253P2-250 (REF)
-23 (REF)

ADD -7 ASSY (-5 ASSY MAYBE REWORKED INTO -7 ASSY)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	*LCD 2319 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO FACILITATE INSTL OF MATING PARTS	ADDED -7 ASSY & -25 EFF LM2 THRU 15 REMOVED -5 & -21 FOR LM2 THRU 15	JK 11/18/67

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			-21	DATE	11/16/67			11-16-67			11/16/67	11-18-67
LM		LM2(32) THRU	15(45)	REVISE DWG	RECORD EO	REWORK	SCRAP	B	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	HINGE ASSY D/S-SLA ADAPTER - ANT SUPT.	LDW280-18280	A6

11/27 ISSUED BY DON RAGAS X1153 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18281

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51555	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
		LM-4(34)	2
		LM-3(33)	2
		LM-2(32)	2
LM	LDW280-51555	LM-1(31)	2
PART NO. LDW280-18281-19		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51555	LM-15(45)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
		LM-6(36)	1EA
		LM-5(35)	1EA
		LM-4(34)	1EA
		LM-3(33)	1EA
		LM-2(32)	1EA
LM	LDW280-51555	LM-1(31)	1EA
PART NO. LDW280-18281-11,13,15,-17,21,23		GAEC SCH NO. 50-2	

WORK PKG FUNCTION NO 110

LCD 19-1220

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	300					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -23

GRUMMAN REL INFO

PRIM NO. 207 | JK(001) | MF-14 | 4/4/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS – DECIMALS – ANGLES
±1/32 ±.020 ±1/2

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II 2

DRAWN BY J Gardella 3-27-67
LAYOUT BY G Bornes G.B. 3-29-67
CHECKED BY LM 3-28-67
GR LEADER J. Stuchewski 3/30/67
VEH DES INT J. Pusateri 3/29/67
STRUCTURES DH with 3/27/67
STRUCTURES EB 3/30
WEIGHTS
PROJ ENGR D. G. McClughan 3/31/67
REL GROUP J Good 4/4/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE ~ LM SPACECRAFT LM
ADAPTER ~ UMBILICAL RECEPTACLE

SIZE B | CODE IDENT NO. 26512 | LDW280-18281

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 3-20-67

01 NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18281-23	E		BRACKET	TITANIUM SH		6AL-4V	040 × 1 7/8 × 1 7/8	NONE	NONE	
	-21			BRACKET				040 × 1 7/8 × 1 7/8			
	-19			DOUBLER		MIL-T-9046		040 × 1 7/8 × 2			
	-17			BRACKET		TYPE III, COMP. B		040 × 3 3/8 × 7 1/4			
	-15			ANGLE		COND ANNEALED		040 × 1 3/8 × 7 1/8			
	-13			ANGLE				040 × 1 3/8 × 7 5/8			
	LDW280-18281-11	E		BRACKET	TITANIUM SH		6AL-4V	040 × 5 × 9 1/2	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18281

SCALE NONE

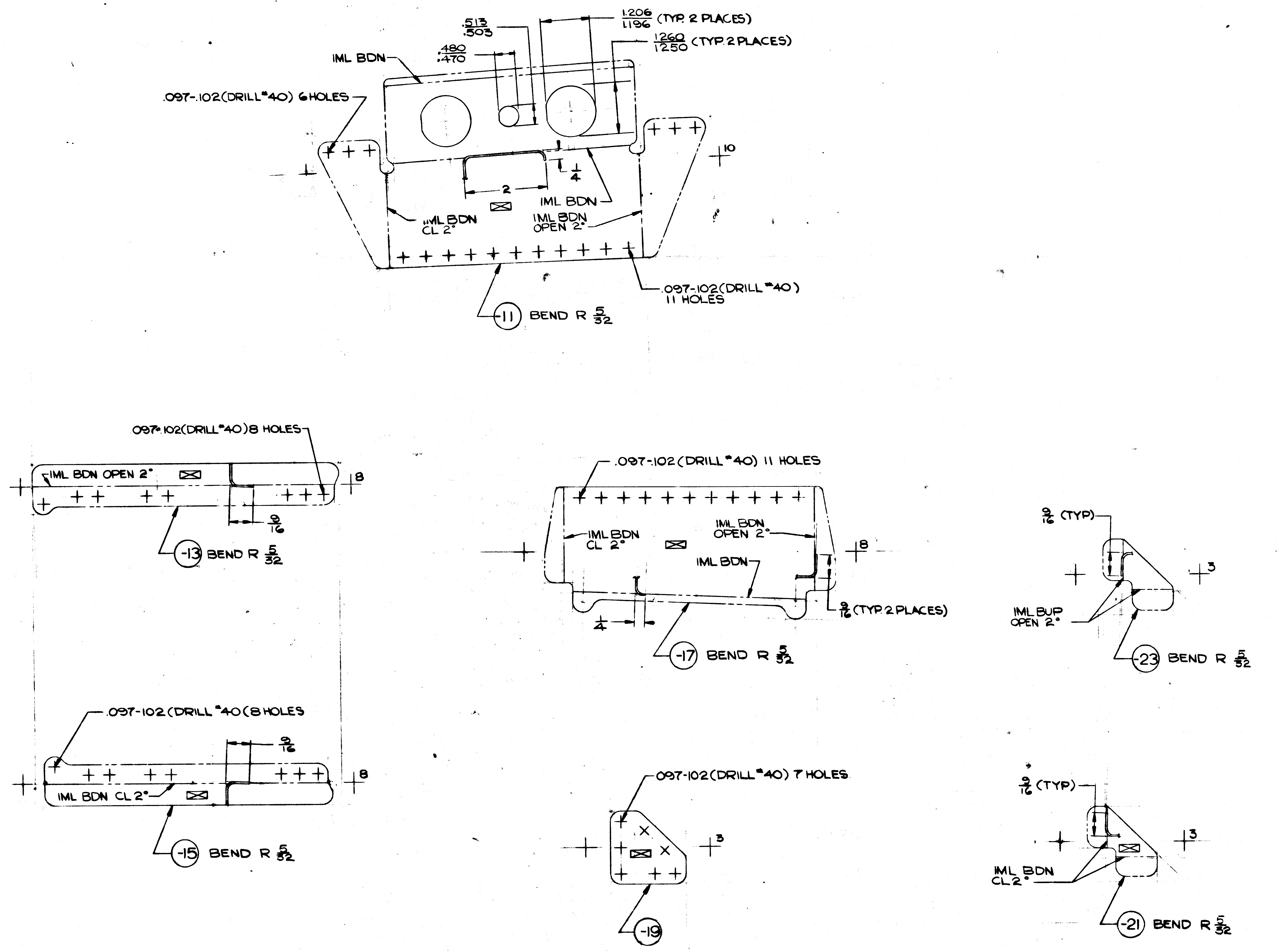
SHEET 200

ENG 77.2 5-64

01

NAS 9-1100

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.



.513
.503
1.206
1.196 (TYP. 2 PLACES)
1.260
1.250 (TYP. 2 PLACES)
.480
.470
IML BDN
.097-.102 (DRILL #40) 6 HOLES
10
2
1/4
IML BDN
IML BDN CL 2°
IML BDN OPEN 2°
.097-.102 (DRILL #40) 11 HOLES
-11 BEND R 5/32
.097-.102 (DRILL #40) 8 HOLES
IML BDN OPEN 2°
8
9/16
-13 BEND R 5/32
.097-.102 (DRILL #40) 11 HOLES
IML BDN CL 2°
IML BDN OPEN 2°
IML BDN
8
1/4
9/16 (TYP. 2 PLACES)
-17 BEND R 5/32
9/16 (TYP)
3
IML BDN OPEN 2°
-23 BEND R 5/32
.097-.102 (DRILL #40 (8 HOLES
9/16
8
IML BDN CL 2°
-15 BEND R 5/32
.097-.102 (DRILL #40) 7 HOLES
3
-19
9/16 (TYP)
3
IML BDN CL 2°
-21 BEND R 5/32

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED 16	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	E	26512	LDW280-18281
	SCALE FULL		SHEET 3

FOR PHOTO 1 REPRODUCTION

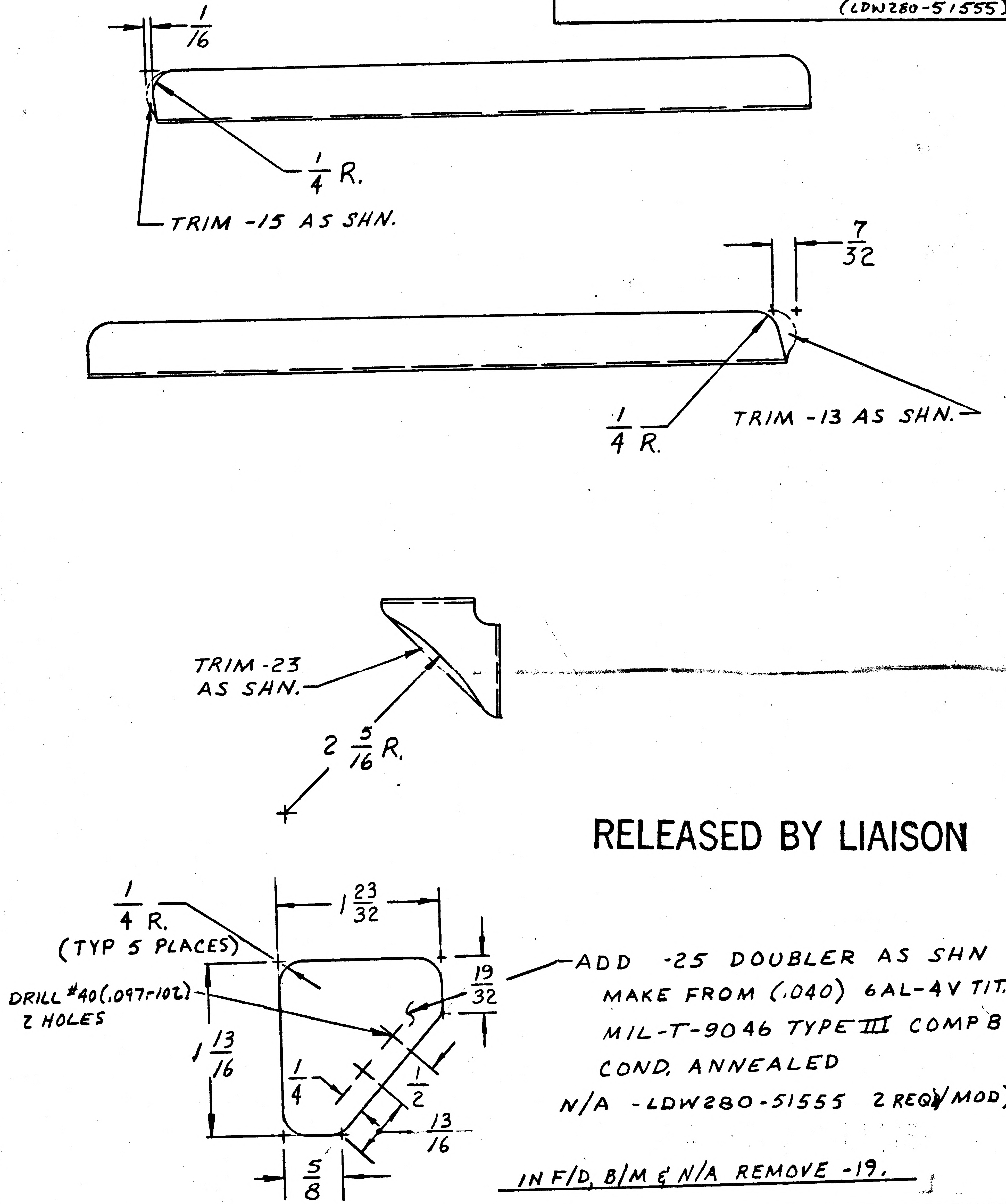
A

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18281 EO NO. A1
CONTROL INFO NO. LM5-13217

EO REF ONLY - THIS EO IS IN CONJUNCTION WITH EO CONT # LM5-13216 (LDW280-51555)



1/16
1/4 R.
TRIM -15 AS SHN.
7/32
1/4 R.
TRIM -13 AS SHN.
TRIM -23 AS SHN.
2 5/16 R.
1/4 R. (TYP 5 PLACES)
DRILL #40(.097-.102) - 2 HOLES
1 23/32
19/32
1 13/16
1/4
1/2
13/16
5/8

RELEASED BY LIAISON

ADD -25 DOUBLER AS SHN
MAKE FROM (.040) 6AL-4V TIT. SH.
MIL-T-9046 TYPE III COMP B
COND. ANNEALED
N/A - LDW280-51555 2 REQ/MOD)

IN F/D, B/M & N/A REMOVE -19.

5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: TO FACILITATE INSTL OF DETAIL PARTS

DESCRIPTION OF EO: TRIMMED -13, 15 & -23 ADDED -25, DELETED -19

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31) THRU 15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP -19

			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	WT							DAM (E)	
DATE	4/20/67					4/20/67	4-21-67	4-25-67	4-21-67
	1	VDI							

PRIORITY: C

DRAWING TITLE: BRACKET D/S - LM SPACECRAFT ADAPTER

DRAWING NO.: LDW280-18281 EO NO.: A1

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

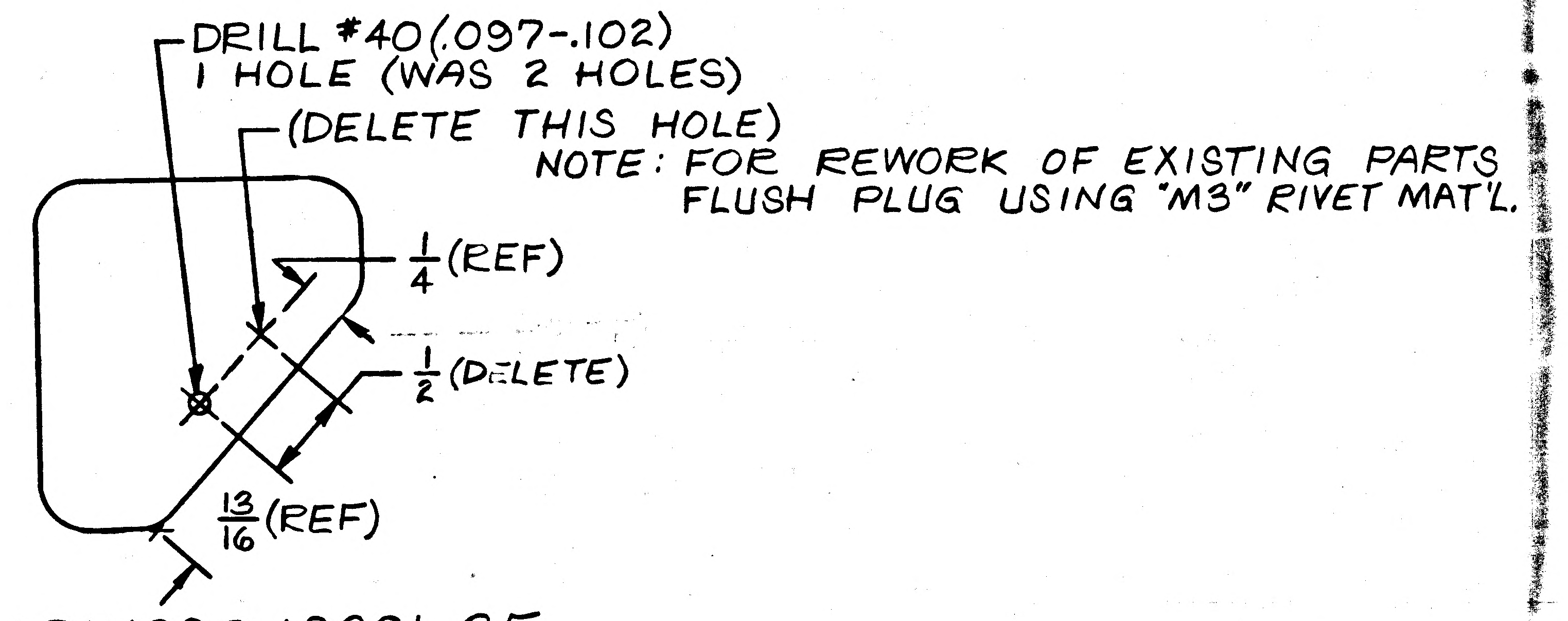
P3 B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18281		EO NO. A2	
CONTROL INFO NO.	LM-2-3589		


DRILL #40(.097-.102)
1 HOLE (WAS 2 HOLES)
(DELETE THIS HOLE)
NOTE: FOR REWORK OF EXISTING PARTS FLUSH PLUG USING "M3" RIVET MAT'L.
1/4 (REF)
1/2 (DELETE)
13/16 (REF)

LDW280-18281-25

THIS IS A REVISION OF EO-A1

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

2
C

REASON FOR EO: TO FACILITATE INSTALLATION OF DETAIL PART HOLE CANNOT ALIGN WITH MATING PART

DESCRIPTION OF EO: REFERENCE EO-A1 FOR -25, IN FLD, DRILL #40 (1 HOLE) WAS (2 HOLES). DELETED 1/2 DIMENSION

GAEC EO RELEASE: ® JK 02025

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP						GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		✓		APPROVED BY	JaP				~			DAM	
				DATE	7/6/67				~	5/18/67	5/18/67	5-19-67	5/19/67
				-1-	VDI	SUPPORT	RELIAB. GROUP						

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET ~ DESCENT STAGE LM SPACECRAFT ADAPTER	LDW280-18281	A2

ISSUED BY LIAISON J. MALONEY 5/18/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

B
RELEASED BY LIAISON

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18281
EO NO. A3
CONTROL INFO NO. LM-5-15603

DESCRIPTION OF E.O.

ON-11 $\frac{1.216}{1.206}$ WAS $\frac{1.206}{1.196}$, $\frac{1.270}{1.260}$ WAS $\frac{1.260}{1.250}$,

$\frac{.523}{.513}$ WAS $\frac{.513}{.503}$ & $\frac{.490}{.480}$ WAS $\frac{.480}{.470}$

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		5

REASON FOR EO: TO ACCEPT CONNECTORS

DESCRIPTION OF EO: NOTED

GAEC EO RELEASE: C JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	Jaf			~	RJBS	EUB	WRB	
DATE	7/21/67			~	7/14/67	7/14/67	7/21/67	7/15/67
	VDI							

PRIORITY: C
DRAWING TITLE: BRACKET D/S.- UMBILICAL RECEPTACLE
DRAWING NO.: LDW280-18281
EO NO.: A3

ISSUED BY LIAISON J. JARVIS SECTION V.D.E. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1436
CONTROL INFO NO. LDW280B7426

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18272	B1	SEE DWG
-18273	B1	
-18281	A4	
-18283	B1	
-18286	B2	
-18290	B1	
-18301	B1	
-18312	B4	
LDW280 -18313	B2	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 54 PG 243, ECP U069, CCA1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 5-1-69; 5/6/69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ · RECORD EO
DISPOSITION OF PARTS: REWORK · SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT
APPROVED BY	[illegible]			[illegible]	[illegible]		[illegible]	[illegible]
DATE	4/18/69			4-2-69	4/8/69		4/9/69	5-5-69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1436

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1521
CONTROL INFO NO. LDW280B 8109

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW280-18272	SEE DWG	B2
273		B2
281		A5
283		B2
286		B3
290		B2
313		B3
316		A2
325		B2
LDW280-18326	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 29 & 30 & 92 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69; SK 8/8/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

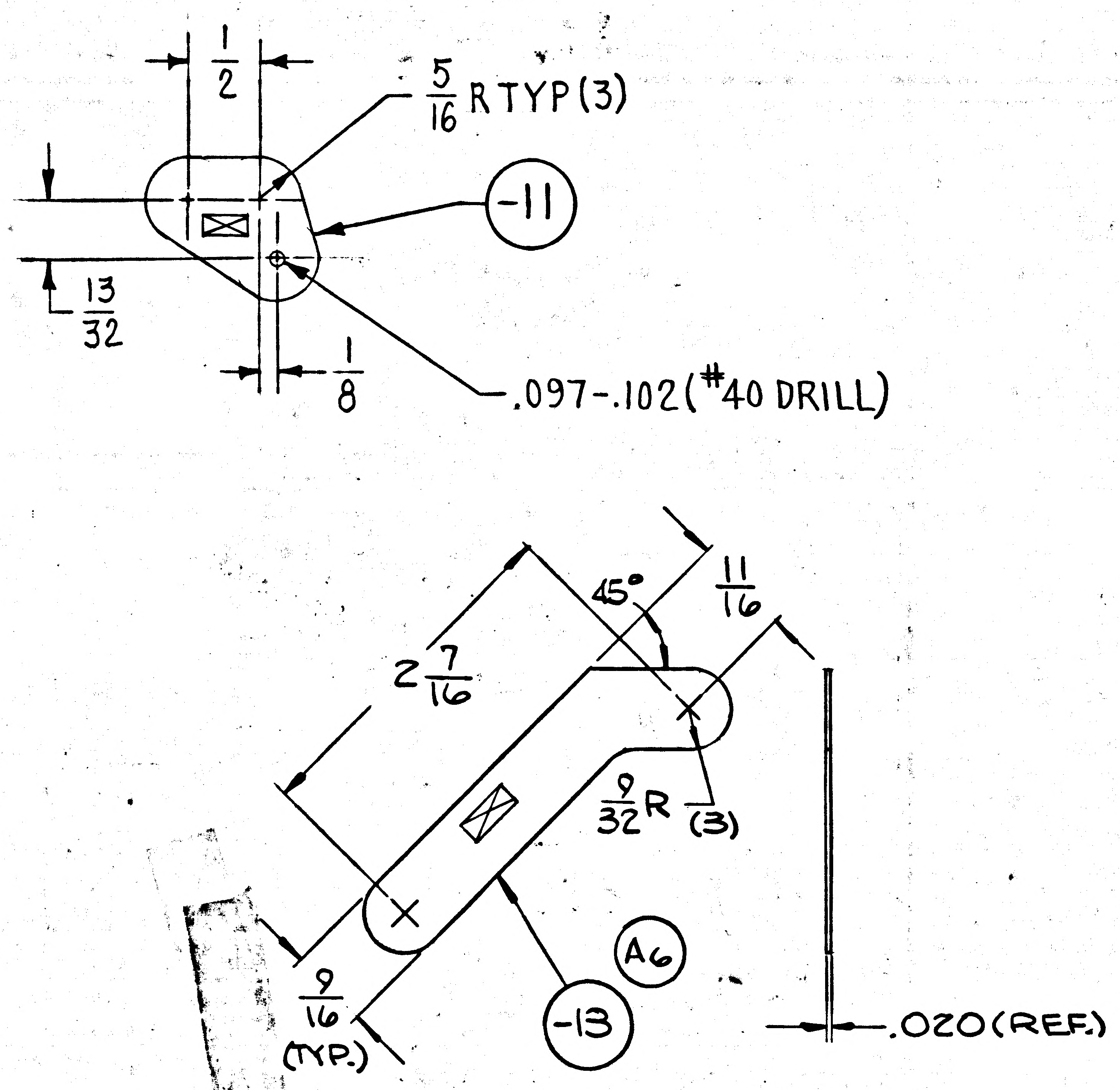
		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					N		Bauman	
DATE	7-29-69			7/29/69	8/1/69		8-7-69	
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1521

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100



MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG

RUBBERSTAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY. √

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

$\sqrt{125}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

$\sqrt{200}$ FOR ALL DRILLED HOLES

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .03

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

SYMBOL √ DENOTES SURFACE TO BE MACHINED

TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18283	A
SCALE FULL			SHEET 3.00

ENG 73.11 12-64

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10							INC LE0280-605 ADDED SH. 1.10	LTA-3 D/R(46)			D. STELLABOTTE 4-18-69		
	2	1.00							INC LE0280-691	LM-3					
	3	1.00		D					INC EOA3	LTA-3 DVT-(70)					
	4	1.00		G					INC LE0280-836	LM-3					
	5	1.00		LFM-119					INC LE0280-935	LTA-8					
	6	1.00, 2.00 3.00		G					INC EOA6	LM-4 THRU LM-15, DVT-(70)					
	7	1.00						Ⓡ	INC LE0280-961	TM-5/R(65)			I.S.		

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18283	A Ⓡ
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18283 A

LFM

PART NO. LDW280-18283-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	DVT-(70)	1
		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-54575	LM-4(34)	1

PART NO. LDW280-18283-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO. 50-2	REQD PER MODULE OR END ITEM
LM	LDW280-66702	TM-5/R(65)	1
LFM 119	LDW280-66702	LTA-8(18)	1
LM	LDW280-54702	DVT-(70)	1
LM	LDW280-54702	LTA-3(13)	1
LM	LDW280-54702	LTA-3D/R(46)	1
LM	LDW280-54702	LM-15(45)	1
LM	LDW280-54702	LM-14(44)	1
LM	LDW280-54702	LM-13(43)	1
LM	LDW280-54702	LM-12(42)	1
LM	LDW280-54702	LM-11(41)	1
LM	LDW280-54702	LM-10(40)	1
LM	LDW280-54702	LM-9(39)	1
LM	LDW280-54702	LM-8(38)	1
LM	LDW280-54702	LM-7(37)	1
LM	LDW280-54702	LM-6(36)	1
LM	LDW280-54702	LM-5(35)	1
LM	LDW280-54702	LM-4(34)	1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

CCA-498 WORK PKG FUNCTION NO. 110 CCD19-975

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO LA

PRIM NO. 207 JK(001) ME-1A 4/25/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II (5)

DRAWN BY	G. ZARCADOOLAS 4-3-67
LAYOUT BY	K. BEACH 4/8/67
CHECKED BY	4.8.67
GR LEADER	4/8/67
VEH DSGN INT	G. Pusateri 4/8/67
STRUCTURES	WH 4/10/67
STRUCTURES	FEB 4/10
WEIGHTS	
PROJ ENGR	R. M. Carbee 4-10-67
REL GROUP	4-11-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE-RADIOACTIVE
THERMOELECTRIC GEN-TRUSS SUPT-SPLICE

SIZE B CODE IDENT NO. 26512 LDW280-18283 A

SCALE NONE SHEET 1.00 OF 4

ENG 77.1 12-65

CDR • 5/7/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18283-13	E		FILLER	TITANIUM ALY	MIL-T-9046 TYPE III COMP C, COND STA	6AL-4V	.020 X 1¼ X 3¼	NONE	NONE	
	LDW280-18283-11	E		PLATE	TITANIUM ALY	MIL-T-9046 TYPE III COMP C COND STA	6AI-4V	.040 X 1¼ X 1¼	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18283	A

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 605
CONTROL INFO NO. LDW280A7157

FOR ALL DASH NOS.* ON THE FOLLOWING DWGS WHICH HAVE LM-6 EFF, ADD LTA-3 D/R (46) EFF. QTY & N/A TO REMAIN THE SAME AS ON LM-6

DWG NUMBER	TITLE	CHG. NO.
LDW280M17729 ✓	SEE DWG	A 2
M17730 ✓	↓	A 1
M17731 ✓		A 1
M17732		A 1
M17733		A 2
M17670		D 2
M17671		B 3
-18283		A 1
-54702		A 3
-54509	SEE DWG	C 8

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD -1242

REASON FOR EO: ADDITION OF RTG SUPPORTS

DESCRIPTION OF EO: IN B/M FOR * ADDED EFF LTA-3 D/R (46)

GAEC EO RELEASE: C

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 D/R (46)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE	5/26/67			5/25/67	5/26/67		5/27/67	5/27/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	V.T.A.	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	605

ISSUED BY K. BEACH/J. STRAKOSCH X1153 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280	EO NO. 691
CONTROL INFO NO. LDW280A 8680	

FOR ALL DASH NO.* ON THE FOLLOWING DWGS WHICH HAVE LM-4(34) EFF & N/A LDW280-54702, ADD LM-3(33) EFF. N/A & QTY TO REMAIN THE SAME AS ON LM-4(34)

DWG	TITLE	CHANGE NO.
LDW280P18282 ✓	SEE DWG	A4
M17670 ✓		D3
M17730 ✓		A2
M17731 ✓		A2
M17732 ✓		A2
M17733 ✓		A3
LDW280-18283 ✓	SEE DWG	A2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1861 CCA 498-2

REASON FOR EO: ADDITIONAL REQMTS (CCA498 AMEND 2)

DESCRIPTION OF EO: FOR * ADDED LM-3(33) REQMTS

Ⓡ GAEC EO RELEASE: C; JK 8/24/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQD	DATE	8/22/67			—	NM 8/23/67		8/23/67	8-23-67
REVISE DWG	RECORD EO	REWORK	SCRAP	8/8/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	691

8/26
ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW 280-18283 | EO NO. A3

CONTROL INFO NO. LDW2[illegible]B0710

FOR -11 ADD N/A LDW 280-54702
EFF: LTA-3(13) & DVT(70), 1 REQ'D/MOD

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA 586

REASON FOR EO: ADD PROV. FOR TRUSS SUPT INSTL

DESCRIPTION OF EO: FOR -11 ADDED LTA-3(13) & DVT(70) EFF.

GAEC EO RELEASE: 12/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

	D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY						NM			
DATE		12/5/67			12-5-67	12/1/67		12/5/67	12/6/67

PRIORITY: C

DRAWING TITLE: PLATE - DESCENT STAGE - RADIOACTIVE THERMOELECTRIC GEN-TRUSS SUPT-SPLICE

DRAWING NO. LDW 280-18283

EO NO. A3

12-9-67
ISSUED BY R. STOBE / P. THORJUSEN (EXT 9505) SECTION VEH. DES. INT GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDL.

ENG 32.1 REV 3-65

DWG. NO. LEO 280	EO NO. 836
CONTROL INFO NO. LDW 280B0716	

REMOVE LM 3(33) EFFECTIVITY FOR THE FOLLOWING DASH NO:S FROM THE FOLLOWING DWGS. N/A LDW280-54702.

DWG. NO *	DASH NO.	CHANGE NO.	TITLE
✓ LDW280M17730	-11	A4	SEE DWG
✓ LDW 280 M 17731	-11	A4	
✓ LDW 280 M 17732	-11	A4	
✓ LDW 280 M 17733	-11	A5	
✓ LDW 280 M 17544	-9 ‡ -11	A10	
✓ LDW 280 -18283	-11	A4	
LDW 280 -17739	-27 ‡ -29	C3	
LDW 280 M 17610	-5	D5	
LDW 280 M 17671	-1	B6	SEE DWG

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ CCA 788 / LCD 2446

REASON FOR EO
REMOVAL OF RTG SUPPORT TRUSS

DESCRIPTION OF EO
FOR *
REMOVED LM 3(33) EFFECTIVITY

GAEC EO RELEASE (5)

EFFECTIVITY

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			✓
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
					NM		JaP	Botti
DATE	12/21/67			12/20/67	12/21/67		12/21/67	1-11-68
G	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	836

1-12-68
ISSUED BY D. SHAPIRO (X-9505) SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORD

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 935
CONTROL INFO NO. LDW280B2914

FOR ALL PART NO'S LISTED BELOW ADD LFM 119 FOR LTA-8(18)

PART NO'S (*)	DWG TITLE	N/A	QTY/MOD	CHG. NO.
✓ LDW280-18283-11	SEE DWG.	LDW280-66702	1	A5
✓ LDW280M17544-9/-11	↓	↓	1 EA.	B2
✓ ↓ M17872-11	↓	↓	1	B1
✓ ↓ M17670-5	↓	↓	1	D7
✓ ↓ M17671-1	↓	↓	1	B7
✓ ↓ M17730-11	↓	↓	1	A5
✓ ↓ M17731-11	↓	↓	1	A5
✓ ↓ M17732-11	↓	↓	1	A5
✓ LDW280M17733-11	SEE DWG	LDW280-66702	1	A6

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1021-26 CCA 498 PKG 2 (5)

REASON FOR EO: LTA8/LM5 UPDATE

DESCRIPTION OF EO: ON (*) ADDED END ITEM LFM 119 REQMTS.

GAEC EO RELEASE: C JK 5/2/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 119	LTA8 (18)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQD. (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	GAP						GAP	JRP
DATE	4/27/68			4/26/68	4/30/68		4/30/68	5-1-68

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO. LEO 280
EO NO. 935

6-7-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN x1153 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1436
CONTROL INFO NO. LDW280B7426

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18272	B1	SEE DWG
-18273	B1	
-18281	A4	
-18283	B1	
-18286	B2	
-18290	B1	
-18301	B1	
-18312	B4	
LDW280 -18313	B2	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 54 PG 243, ECP 1069, CCA1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: SAB 5-1-69; 5/6/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ ; RECORD EO
DISPOSITION OF PARTS: REWORK ; SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	4/8/69			4-2-69	4/8/69		4/9/69	5-5-69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1436

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1630
CONTROL INFO NO. LDW280B 8454

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW280 - 18283	SEE DRAWING	LDW280-54575	B3
-18487		-54575	A6
-18610		-54575	A5
-18611		-54575	A4
-18612		-54575	A4
-18613		-54575	A5
M17266		-54575	D3
M17629		-54575	C2
M17640		-54575	C3
M17798		-54575	A7

DETAIL SPEC REQ ☐ CL. II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 9+10 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

								GAEC EO RELEASE
APPROVED BY	PSF				W.H.			8/A 8-22-9
DATE	8-8-69			8/19/69	8/12/69		8/12/69	8/27/9
VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO. 1630

8-27-69
ISSUED BY A. Fuelo X 86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

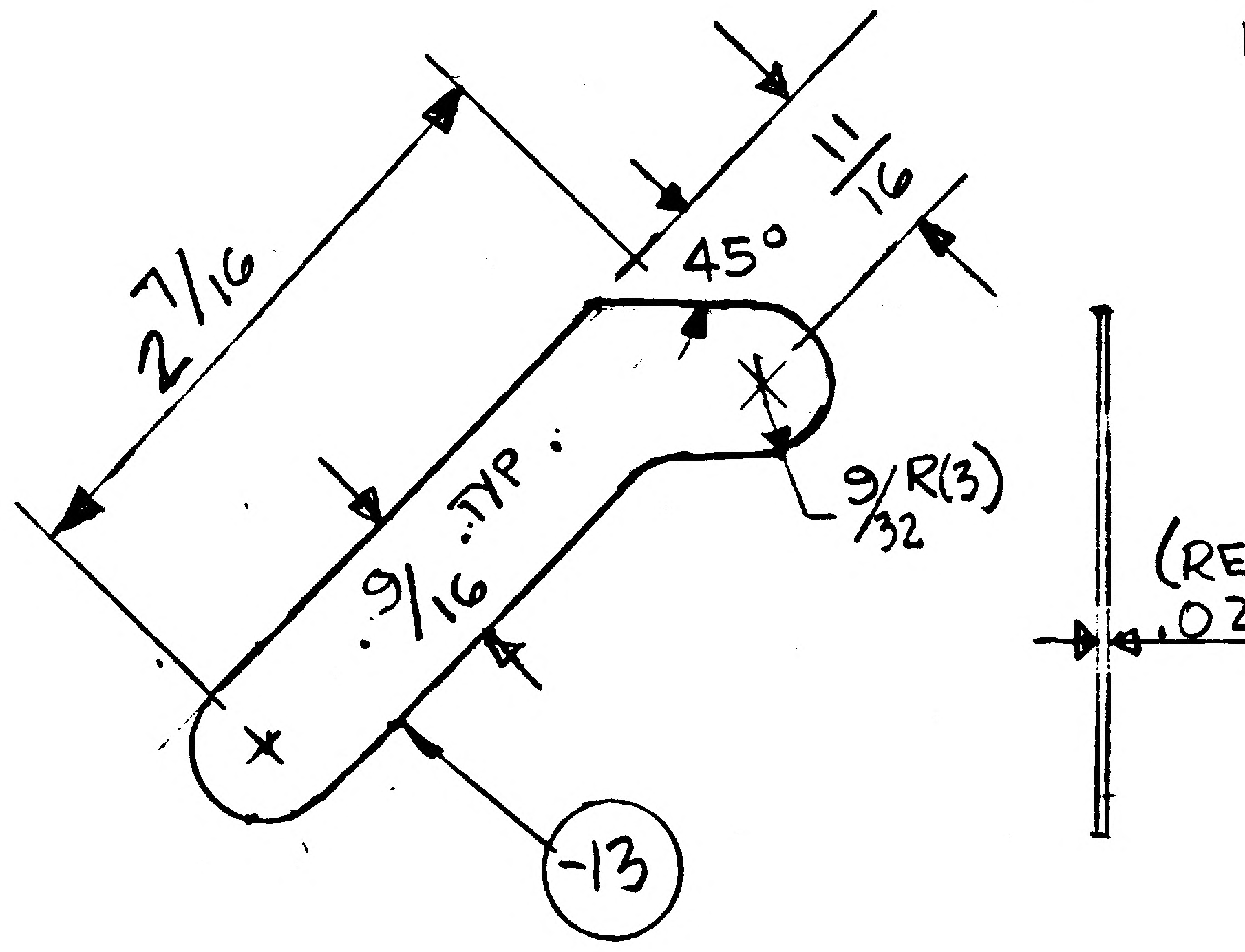
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18283		EO NO. A6
CONTROL INFO NO. LDW280 B3478		

ADD -13 FILLER EFF LM-4 (31) THRU LM-15(45), DVT 70



N/A LDW280-54575
1 REQD/VEH,
.020 THICK 6AL-4V
TITANIUM ALLOY
MIL-T-9046 TYPE III
COMP 'C' COND STA.
FINISH: NONE
I & T=E

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 1433 CCA 586 PKG 14 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL STRENGTH REQD TO MAKE UP FOR MISMATCH OF HOLES	ADDED -13	C JK 5/23/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	DVT 70		
LM	LM-4 (34)	THRU LM15	(45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

APPROVED BY	Jaf			P&R	WH		Jaf	
DATE	5/15/68			5-15-68	5/15/68		5/15/68	5-15-68
G	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CCOT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE D/S RADIOACTIVE THERMOELECTRIC GEN - TRUSS SUP-SPLICE	LDW280-18283	A6

CDR 5/18
ISSUED BY J. LANG / P. THORJUSEN X1153 5/14/68 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

THIS IS AN
ORIGINAL L.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280
EO NO. 1521
CONTROL INFO NO. LDW 280B 8109

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW 280-18272	SEE DWG	B 2
273		B 2
281		A 5
283		B 2
286		B 3
290		B 2
313		B 3
316		A 2
325		B 2
LDW 280-18326	SEE DWG	B 2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 29 & 30 & 92 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69; JK 8/8/9

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA-11 ([redacted] (23	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					N			Bauman
DATE	7-29-69			7/29/69	8/2/69			8-7-69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1521

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18286 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53649	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
	LDW280-53649	LM-3(33)	1
LM			

PART NO. LDW280-18286-17-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28649	LM-2(32)	1

PART NO. LDW280-18286-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53644	LM-15(45)	2EA
		LM-14(44)	2EA
		LM-13(43)	2EA
		LM-12(42)	2EA
		LM-11(41)	2EA
		LM-10(40)	2EA
		LM-9(39)	2EA
		LM-8(38)	2EA
		LM-7(37)	2EA
		LM-6(36)	2EA
		LM-5(35)	2EA
		LM-4(34)	2EA
	LDW280-53644	LM-3(33)	2EA
	LDW280-28644	LM-2(32)	2EA
LM	LDW280-28644	LM-1(31)	2EA

PART NO. LDW280-18286-15&-16

GAEC SCH NO. 52

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET								
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL INFO

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO.

DRAWN BY

LAYOUT BY

CHECKED BY

PROJ ENGR

REL GROUP

LINE ITEM

DOCUMENTATION TYPE

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18286	A

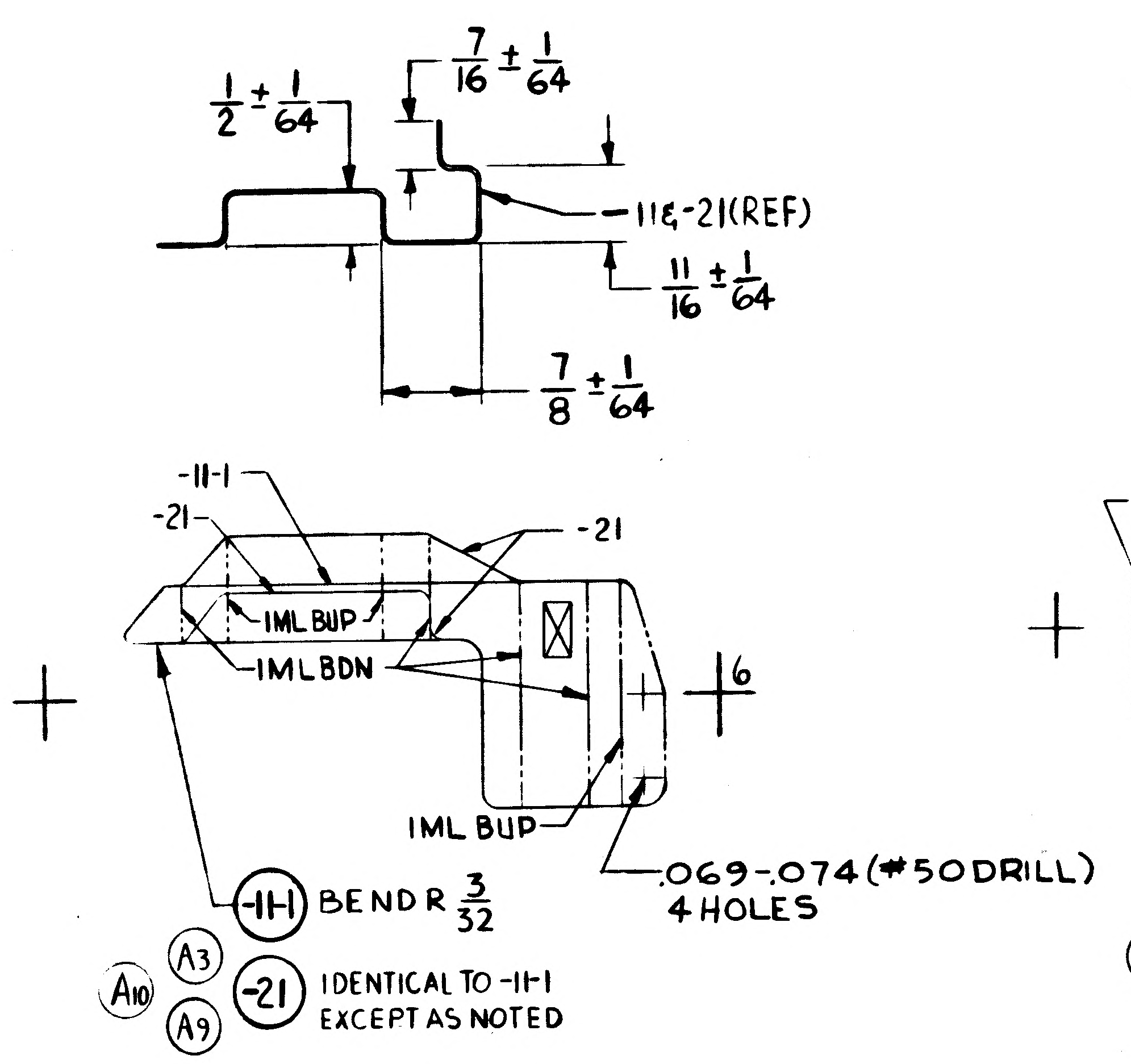
SCALE NONE

SHEET 1.01

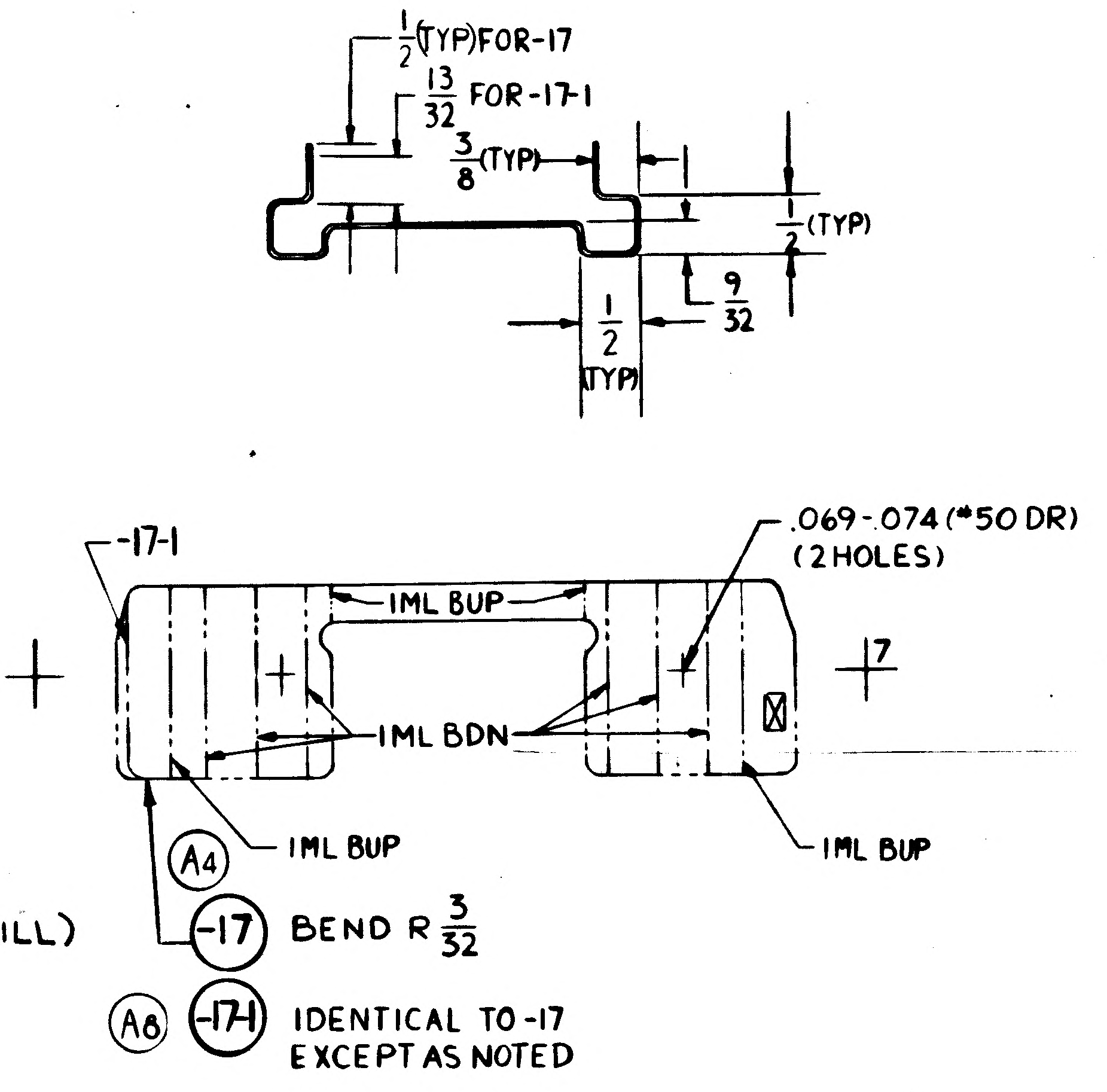
ENG 77.1 12-65

01

NAS 9-1100

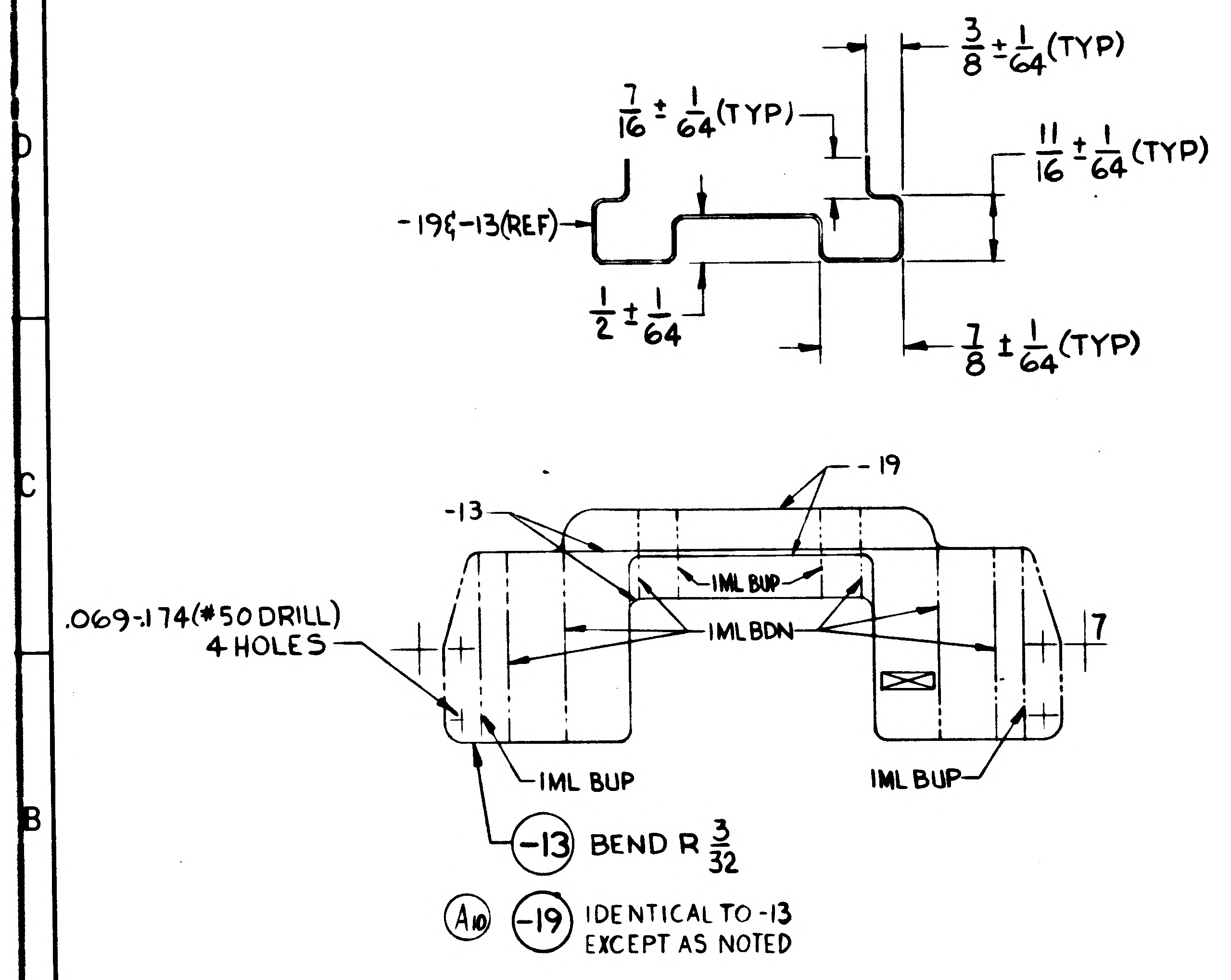


1/2 ± 1/64
7/16 ± 1/64
-11 & -21 (REF)
11/16 ± 1/64
7/8 ± 1/64
-11-1
-21
-21
IML BUP
IML BDN
6
IML BUP
.069-.074 (#50 DRILL) 4 HOLES
-11-1 BEND R 3/32
A3
A10
A9
-21 IDENTICAL TO -11-1 EXCEPT AS NOTED

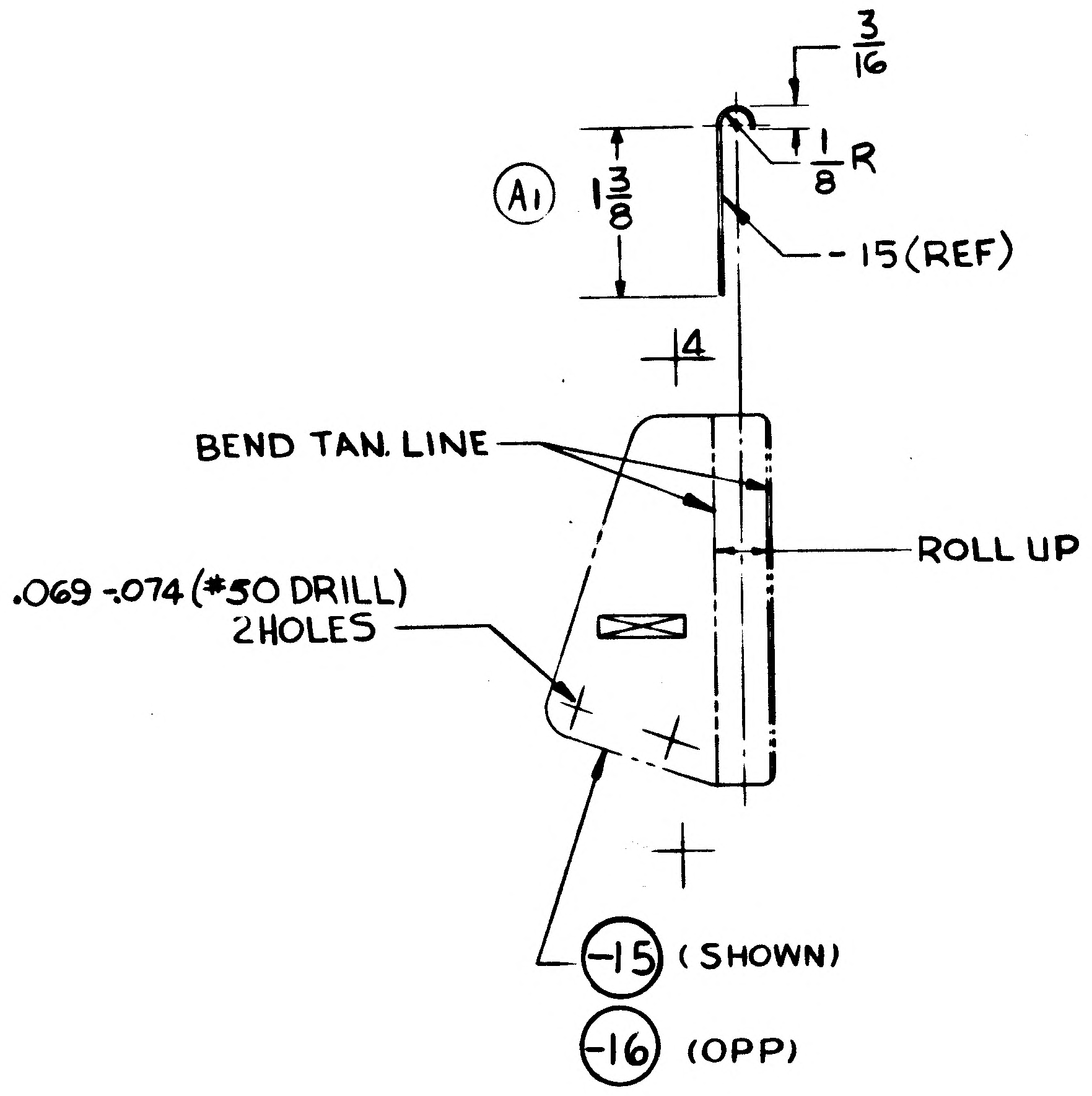


1/2 (TYP) FOR -17
13/32 FOR -17-1
3/8 (TYP)
1/2 (TYP)
9/32
1/2 (TYP)
-17-1
.069-.074 (#50 DR) (2 HOLES)
IML BUP
IML BDN
7
A4
IML BUP
IML BUP
-17 BEND R 3/32
A8
-17-1 IDENTICAL TO -17 EXCEPT AS NOTED

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS



3/8 ± 1/64 (TYP)
7/16 ± 1/64 (TYP)
11/16 ± 1/64 (TYP)
-19 & -13 (REF)
1/2 ± 1/64
7/8 ± 1/64 (TYP)
-19
-13
IML BUP
IML BDN
.069-.174 (#50 DRILL) 4 HOLES
7
IML BUP
IML BUP
-13 BEND R 3/32
A10
-19 IDENTICAL TO -13 EXCEPT AS NOTED



3/16
A1
1 3/8
1/8 R
-15 (REF)
14
BEND TAN. LINE
ROLL UP
.069-.074 (#50 DRILL) 2 HOLES
-15 (SHOWN)
-16 (OPP)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM LM	SIZE F	CODE IDENT NO. 26512	LDW280-18286	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION K2

LDW280-18286 A

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	DEPT APPD
A	1	1.00, 1.10,3.00					✓	E.O.A1	FOR-15 & -16, IN FLD. DWG., RELOCATED 13/8 DIM, WAS FULL LENGTH OF PART. ADDED SH. 1.10	NOT REQD	NOT	REQD.	S. CARANO 2-14-68		
	2	1.00				✓		E.O.A2 LCD-1244	IN MOD/BLK: REMOVED LM1 & LM2 EFF FOR-13, REVISED N/A FOR-11, N/A LDW280P51116 WAS LDW280-28646	LM-1(31) LM-2(32)		-13			
	3	1.00, 2.00,3.00				✓		E.O.A3 LCD1244	IN FLD, B/M, & M/B: ADDED -11-1 REMOVED -11 (-11 MAY BE REWORKED INTO -11-1)	LM-1(31)	NOTED				
	4	1.01, 2.00 3.00		P			✓	E.O.A4 LCD1173	ADDED-17, IN M/B REVISED QTY FOR-13, 1 REQD. WAS 2 REQD. N/A LDW280-28649, LM-2 THRU LM-15	LM-2(32) THRU LM-15(45)		-13			
	5	1.00,1.01		P		✓		E.O.A5 LCD1244	FOR-11(1) N/A LDW280-53646 WAS LDW280-28646 -13(1) & -17(1) N/A LDW28-53649 WAS LDW280-28649 -13(1) N/A LDW280-53646 WAS LDW280-28646 -15(2)-16(2) N/A LDW280-53644 WAS LDW280-28644	LM-3(15) THRU LM-15(45)	NOT	REQD.			
	6	1.00				✓		E.O.A6 LCD1244 CCA 667	IN M/B: ADDED-11-1 & REMOVED-11 FOR LM-2(32) N/A LDW280P51116 (-11 MAY BE REWORKED INTO -11-1)	LM-2(32)	NOTED				
	7	1.00 2.00 3.00					✓	E.O.A7	REF E.O.A5: DELETED LINE FOR -11____. ADDED-11-1(1) REQD./MOD N/A LDW280-53646 & DELETED-11 EFF LM-3 THRU LM-15	LM-3(33) THRU LM-15(45)	NOT	REQD.			
	8	1.01 2.00,3.00		P		✓		E.O.A8 LCD1244	ADDED -17-1, RESTRICTED -17 TO LM-2(32), WAS LM-2(32) THRU LM-15(45) (-17 MAY BE REWORKED INTO -17-1)		NOTED				
	9	3.00					✓	E.O.A9	TRIMMED -11-1	LM-2(32) THRU LM-15(45)	✓		RMS		
	10	3.00,2.00 1.00		LFM420- 2370-003		✓		E.O.A10 LCD1244 CCA 667	IN FLD., B/M, & M/B. CREATED -19 & -21 REMOVED -13 & -11-1	LM-3(33) THRU LM-15(45) SERIAL# 1		-13, -11-1			
	11	1.10,3.00		LFM420- 2370-003		✓		LCD1244 CCA 667	REF EO A10: IN FLD OF EO, ON-19, 11/16 R (2) PL & 1/4 R(TYP) S/B 11/32 R (2) PL & 1/8 R (TYP). ON-21, 1/4 R (TYP) S/B 1/8 R (TYP)						

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHT	RELIABILITY
A	Thompson 4-1-68	4/2/68	4/2/68	4/3/68		

FOR CONTINUATION OF REVISIONS SEE SHEET ________

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18286	A
SCALE NONE		SHEET 1.10	

ENG 77.3 5-66

01

NAS 9-1100

LDW280-18286 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW230-28649	LM-2(32)	1
LM	LDW280-28649	LM-1(31)	1
PART NO. LDW280-18286-13		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53649	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
LM	LDW280-53649	LM-3(33)	1
LFM420-2370-003			
LDW420-2370	LDW280-18286	SER#1	1
PART NO. LDW280-18286-19		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280P51116	LM-2(32)	1
LM	LDW280P51116	LM-1(31)	1
LDW280-18286-11-1			
LM	LDW280-53646	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
LM	LDW280-53646	LM-3(33)	1
LFM420-2370-003			
LDW420-2370	LDW280-18286	SER*1	1
PART NO. LDW280-18286-21		GAEC SCH NO. 52	

LCD19-1173 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.0C	1.01	1.10	2.00	3.00			
REV	A	A	A	A	A			
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED —
LAST DASH NO. USED -21
GRUMMAN REL INFO A
PRIM NO. 207 JK(CC) MP-16A 4/15/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE
DRAWN BY CALDARELLA 4/7/67
RELIABILITY
LAYOUT BY R.CLARK 4/12/67
CHECKED BY 4.10.67
GP LEADER 4/14/67
VDI 4/14/67
STRUCTURE 4/14/67
STRUCTURES 4/14
WEIGHTS
PROJ ENGR 4/14/67
REL GROUP Botti 4.15.67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE. L. I., NEW YORK

BRACKET
DESCENT STAGE-INTERSTAGE BLANKET
SUPPORT EXPLOSIVE BOLT PROTECTION

SIZE B
CODE IDENT NO. 26512
LDW280-18286 A
SCALE NONE
SHEET 1.00 OF 5

ENG 77 1 12-65

CDR = 4/14/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18286-21	E		BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.032 X 3 X 6	NONE	88	
	LDW280-18286-19	E		BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.032 X 3 × 7	NONE	88	
	LDW280-18286-17-1	E		BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.032 × 3 × 7	NONE	88	
	LDW280-18286-17	E		BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.032 × 3 × 7	NONE	88	
	LDW280-18286-11-1	E		BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.032 × 3 × 6	NONE	88	
	LDW280-18286-16	E		BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.032 × 3 × 4	NONE	88	
	LDW280-18286-15	E		BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.032 × 3 × 4	NONE	88	
	LDW280-18286-13	E		BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.032 × 3 × 7	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18286	A

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

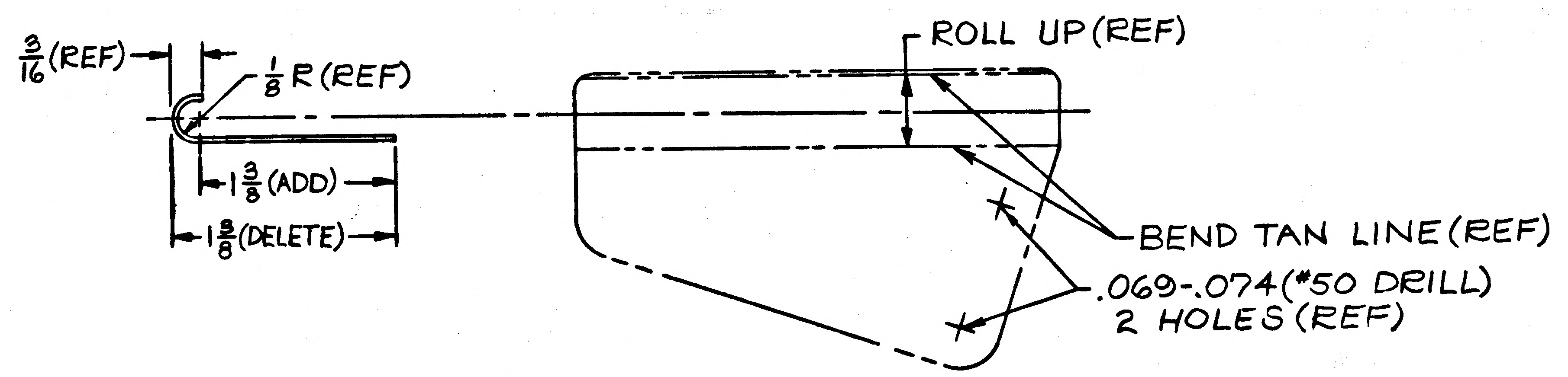
ENG 32.1 REV 3-65

✓

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18286		EO NO. A1
CONTROL INFO NO. LM-2-3612		



$\frac{3}{16}$(REF)
$\frac{1}{8}$R (REF)
$1\frac{3}{8}$(ADD)
$1\frac{3}{8}$(DELETE)
ROLL UP (REF)
BEND TAN LINE (REF)
.069-.074 (#50 DRILL)
2 HOLES (REF)

LDW280-18286-15 SHOWN
-16 OPP

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

2 c

REASON FOR EO
FLAT PATTERN SCALE & SIDE VIEW DIMS DISAGREE (DRAWING CORRECTION ONLY)

DESCRIPTION OF EO
FOR -15 & -16, IN FLD/DWG, RELOCATED 1 3/8 DIM, WAS FULL LENGTH OF PART.

GAEC EO RELEASE
VC
02025

EFFECTIVITY

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQD
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				~				
DATE	7/6/67			~	5/31/67	5/31/67	6/5/67	6/1/67
-6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	BRACKET~D/S~INTERSTAGE BLANKET SUPPORT~EXPLOSIVE BOLT PROTECTION	LDW280-18286	A1

ISSUED BY LIAISON J. MALONEY 5/31/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18286		EO NO.	A2
CONTROL INFO NO.	LMS-13455		

IN MOD/BLK

1) REVISE: -11 N/A LDW280P51116 1 REQD/MOD '(LM1(31) & LM2(32)
WAS
LDW280-28646 1 REQD/MOD

2) REMOVE -13 N/A- LDW280-28646 1 REQD/MOD LM-1(31) EFF.
LM-2(32)

RELEASED BY LIAISON

SHOP NOTE (DON'T INCORP. ON DWG)
EXTRANEOUS HOLES MAY BE LEFT OPEN

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD-1244

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
1) PART REQD ON FITH INSTL 2) PART IS REPLACED BY LDW280P51116 INSTL	IN MOD/BLK REMOVED LM1 & LM-2 EFF FOR-13 REVISED N/A FOR-11, N/A LDW280P51116 WAS LDW280-28646	C JK 31

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31)	
		LM-2(32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			~	DV	EWB		
				DATE	6-1-67			~	6/2/67	6/2/67	6/1/67	6/2/67
✓ REVISE DWG	RECORD EO	REWORK	-13 SCRAP	5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRKT INSTL D/S - INTERSTG - BOLT PROTECTION	LDW280-18286	A2

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO. 335 PL 5

01 NAS 9-1100

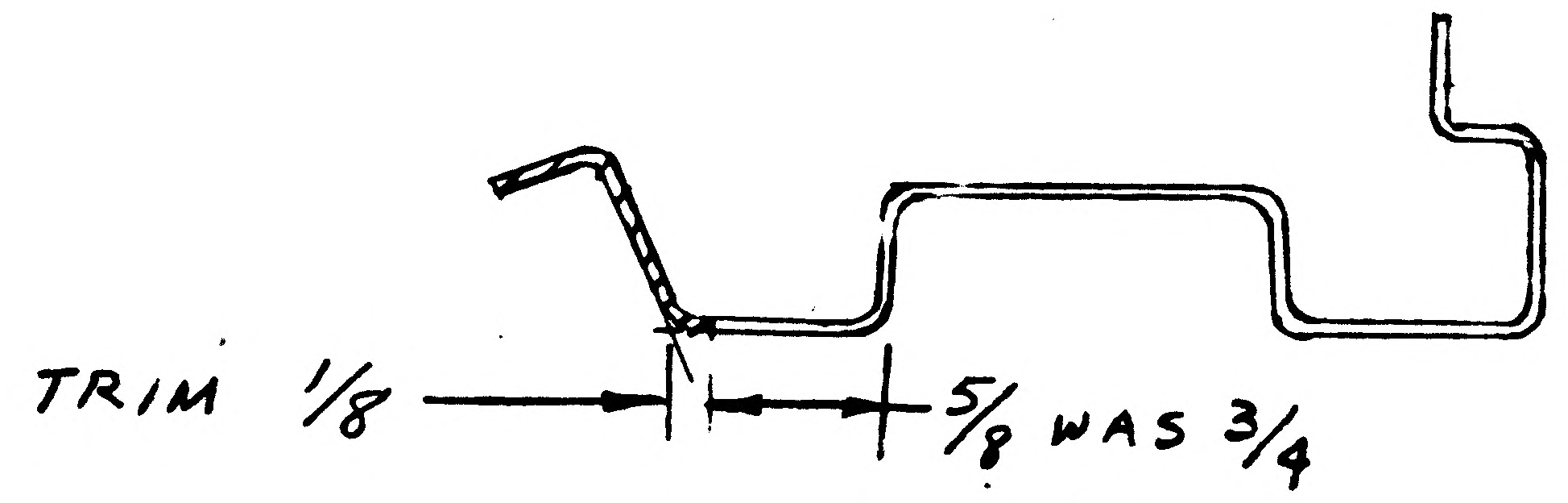
A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18286		EO NO. A3
CONTROL INFO NO. LM5-13478		

IN F/D & B/M:
ADD -11-1 MAKE FROM -11 BY TRIMMING SHADED AREA AS SHN;
IN M/B -11-1 I&T.5 N/A LDW280PS1116 LM1(31)
REMOVE LM1(31) EEF FOR -11



RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD-1244

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PART WAS DESIGNED TO FIT LM-2 VEH.	IN F/D, B/M & MB: ADDED -11-1 REMOVED -11	JK — C

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			~		EWB	Dam	
				DATE	6/3/67			~	6-5-67	6/3/67	6/7/67	/67
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP	5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE D/S - FITH - INTERSTG. + Y	LDW280-18286	A3

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO. 335 PL 5

01 NAS 9-1100

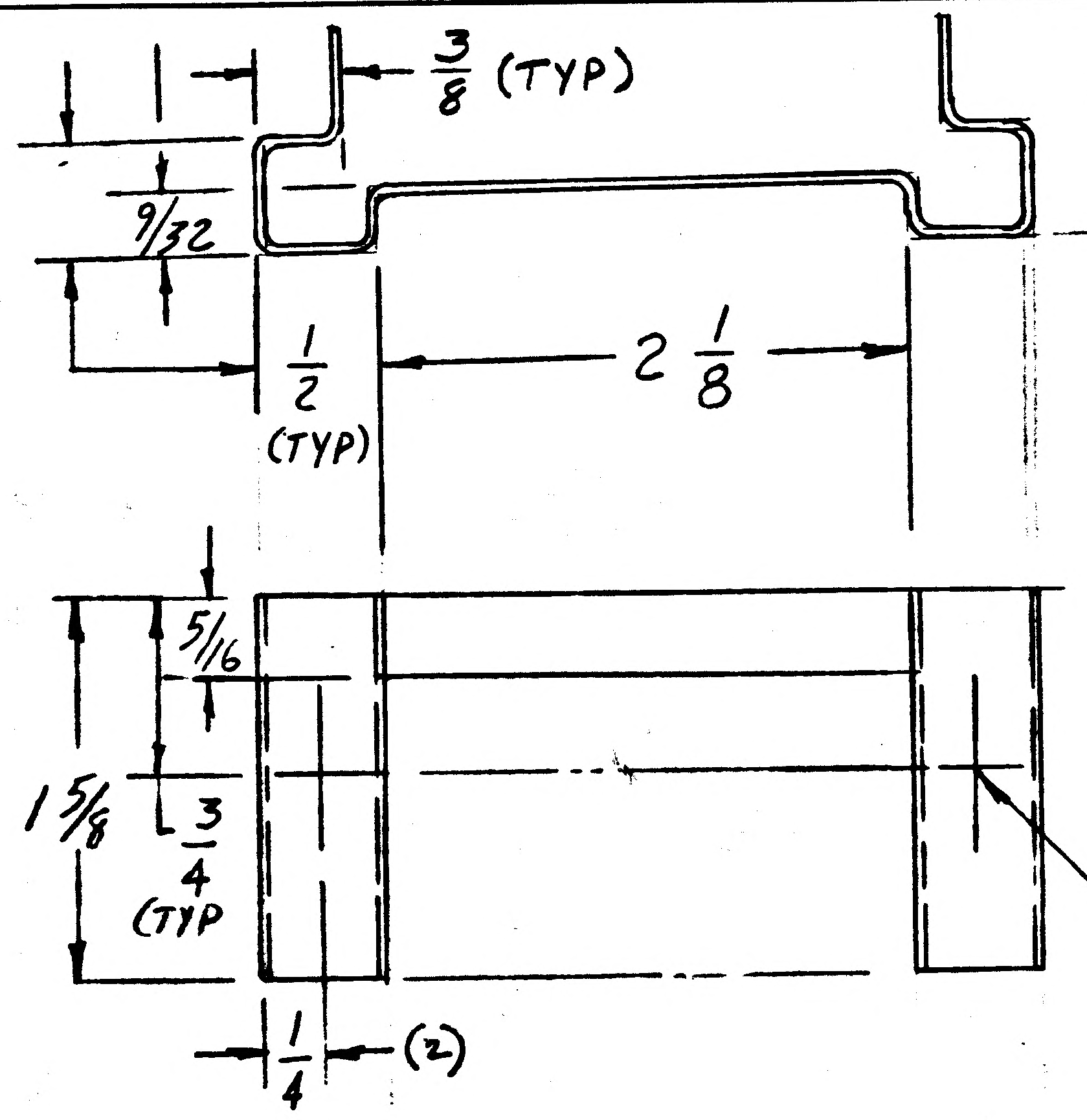
A

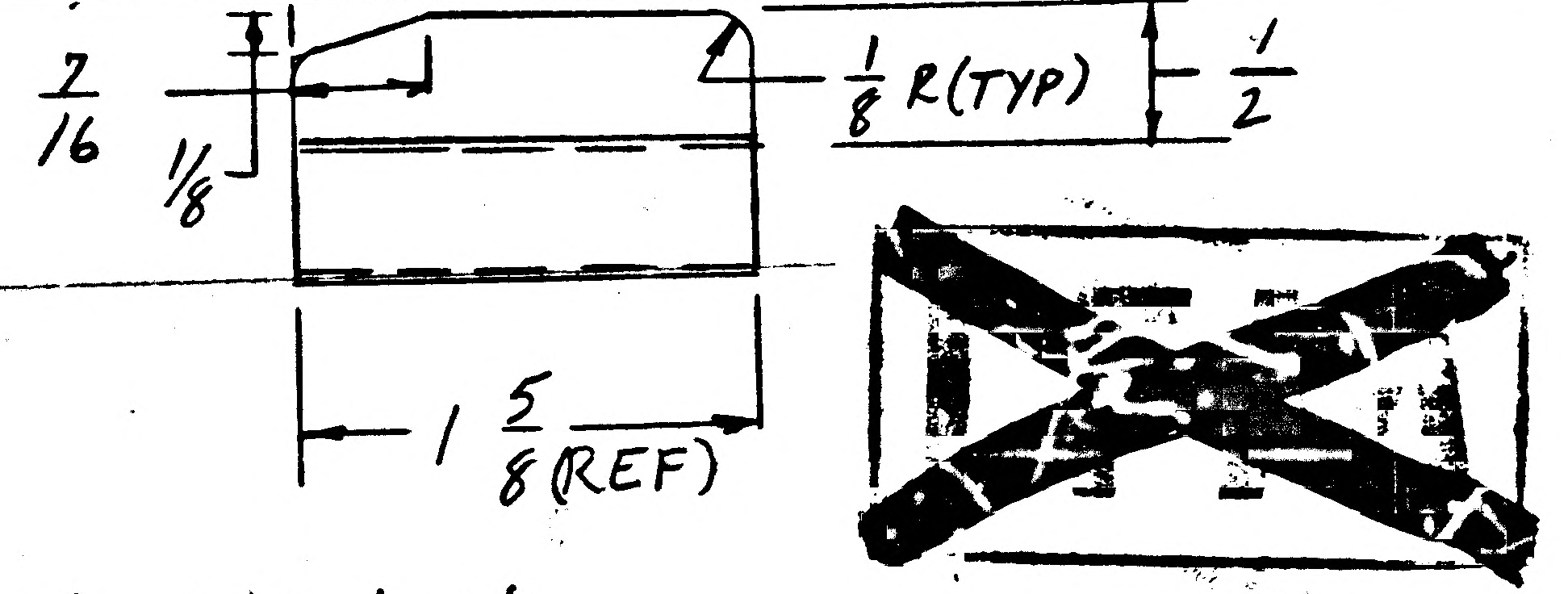
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18286		EO NO. A4
CONTROL INFO NO. LDW280B 0094		





IN F/D B/M & M/B

ADD -17 - MAKE FROM 2024-T3 AL. ALY SH. (.032)
(FIN8 & PER LSP 14-9030) QQ-A-250/4 BR 3/32
N/A LDW280-28649 - 1 REQD
LM2 → 15

DRILL #50 (.069-.074)
(2 HOLES)

IN M/B REVISE QTY OF -13
N/A LDW280-28649 1 REQD WAS 2 REQD
LM2 THRU 15

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 1173 5

REASON FOR EO

TO ELIMINATE INTERFERENCE BETWEEN A/S & D/S SHIELDS

DESCRIPTION OF EO

ADDED -17
IN M/B REVISED QTY FOR -13 1 REQD WAS 2 REQD
N/A LDW280-28649 LM2 THRU 15

GAEC EO RELEASE: JK 10/28/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2(32) THRU 15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓			-13	APPROVED BY								
				DATE				10-26-67	10/26/67		10/26	10-27-67
REVISE DWG	RECORD EO	REWORK	SCRAP	P.	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRKT D/S - BLANKET SUPT - ±Y UP DECK	LDW280-18286	A4

102767
ISSUED BY DON RAGAS X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 -18286		EO NO. A6
TROL NO. LM5-13702		

IN M/B FOR -11-1

ADD (LM2 EFF) N/A LDW280P51116 - 1 REQD

FOR-11: REMOVE - LM2 EFF N/A LDW280P51116

-11 MAYBE REWORK INTO -11-1 (REF EO A3)

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD1244 CCA667 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO ELIMINATE INTERFERENCE WITH DISCONNECT LINES	IN M/B ADDED -11-1 & REMOVED -11 FOR LM2(32) N/A LDW280P51116	® VC

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2(32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JAP				WJH	DV	JAP	
DATE	12/9/6				12/1/67	12/1	12/9/67	12-2-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE D/S - FITH - INTERSTAGE +Y	LDW280-18286	A6

ISSUED BY DON RAGAS/C.HEDGES SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

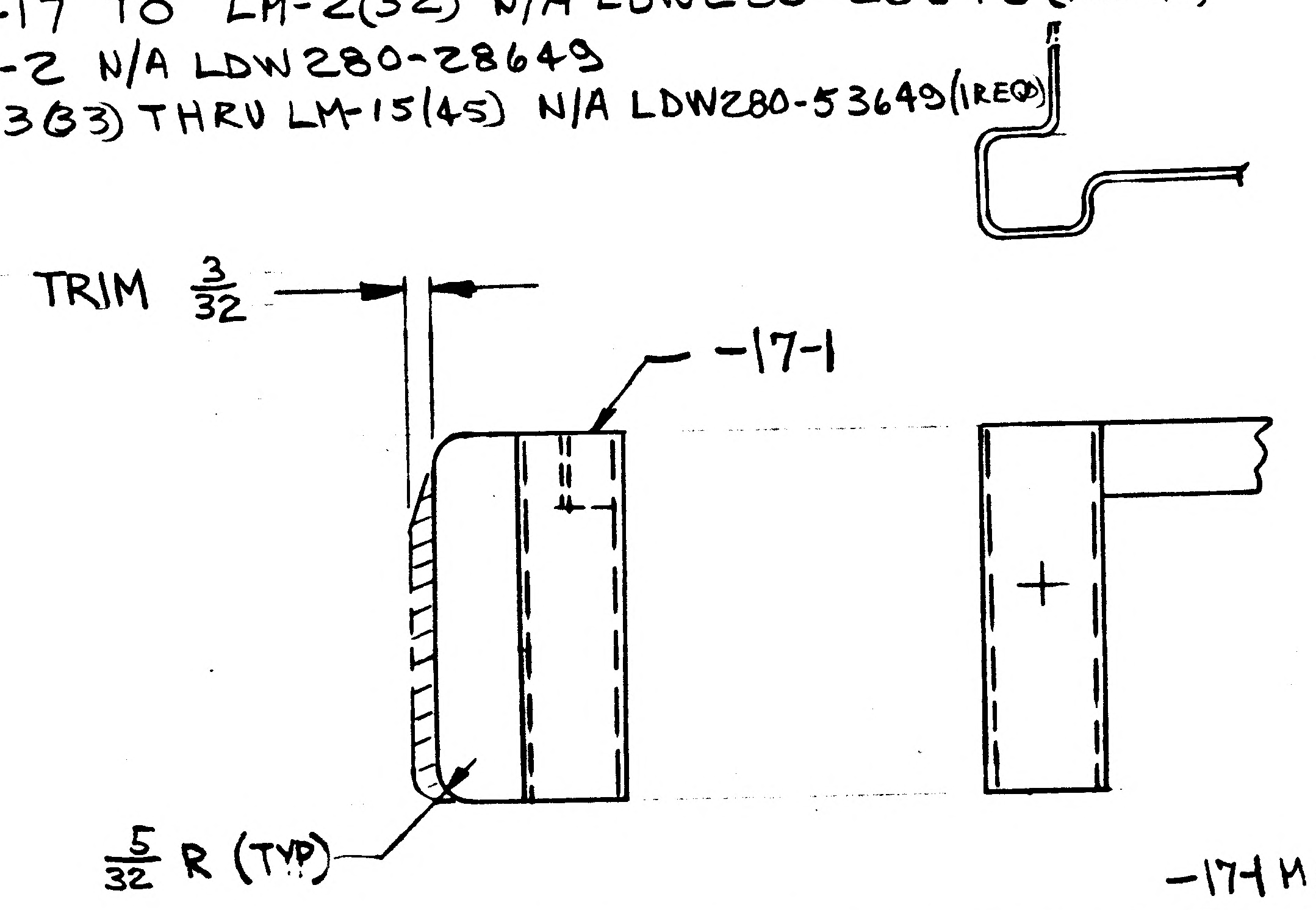
A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18286		EO NO. A8
CONT C' INFC LDW 280B1886		

ADD -17-1 IDENT TO -17 EXCEPT AS NOTED BELOW
-17-1 (1 REQD/MOD) N/A LDW280-53649 EFF LM-3(33) THRU LM-15(45)
RESTRICT -17 TO LM-2(32) N/A LDW280-28649 (1REQD)
WAS EFF LM-2 N/A LDW280-28649
LM-3(33) THRU LM-15(45) N/A LDW280-53649 (1REQD)



-17-1 MAY BE MADE BY REWORKING -17

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1244	(PKG +6) ⑤

REASON FOR EO: TO PROVIDE CLEARANCE WITH FITH SHIELD CLIP

DESCRIPTION OF EO: ADDED -17-1
RESTRICTED -17 TO LM-2(32) WAS LM-2(32) THRU LM-15(45)

GAEC EO RELEASE: JK 2/7/68

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	~~SUB CONTR UNIT~~ NO.
LM		LM-3(33) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
				APPROVED BY								
				DATE	2/2/68			2/2/68	2/5/68		2/2/68	2-7-68
REVISE DWG	RECORD EO	REWORK	SCRAP	P	VDI	SUPPORT	RELIA. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
✓		-17 ✓										

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S BLANKET SUPT - I YUP DECK	LDW 280-18286	A8

CDR 2/9/68
ISSUED BY V.A. CHRISTINA / P. THORJUSEN SECTION VDI X1153 GROUP NO. 335 PL 25

01

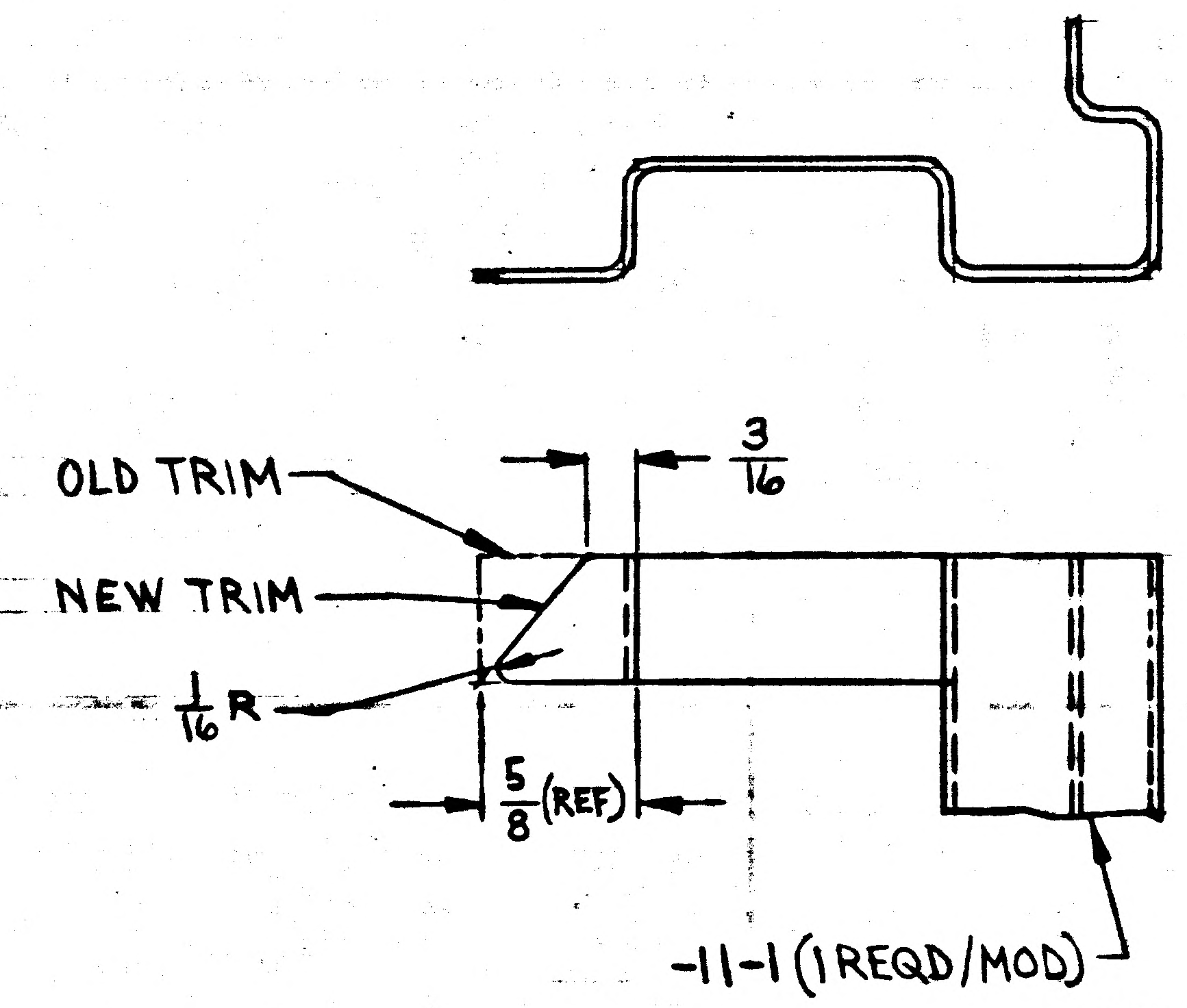
NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18286	EO NO.	A9
CONTROL INFO NO.	LM5-19048		

REWORK -11-1



RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH QD BRACKET

DESCRIPTION OF EO: TRIMMED -11-1

GAEC EO RELEASE: JK (5)

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		-11-1 ✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					W M	CH		
DATE	2/24				2/8/68	2-9-68	2/24	2/26/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE D/S FITH INTERSTAGE +Y	LDW 280-18286	A9

ISSUED BY LIAISON V.A. CHRISTINA SECTION VDI X1153 GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
COD 'DENT NO. 26512

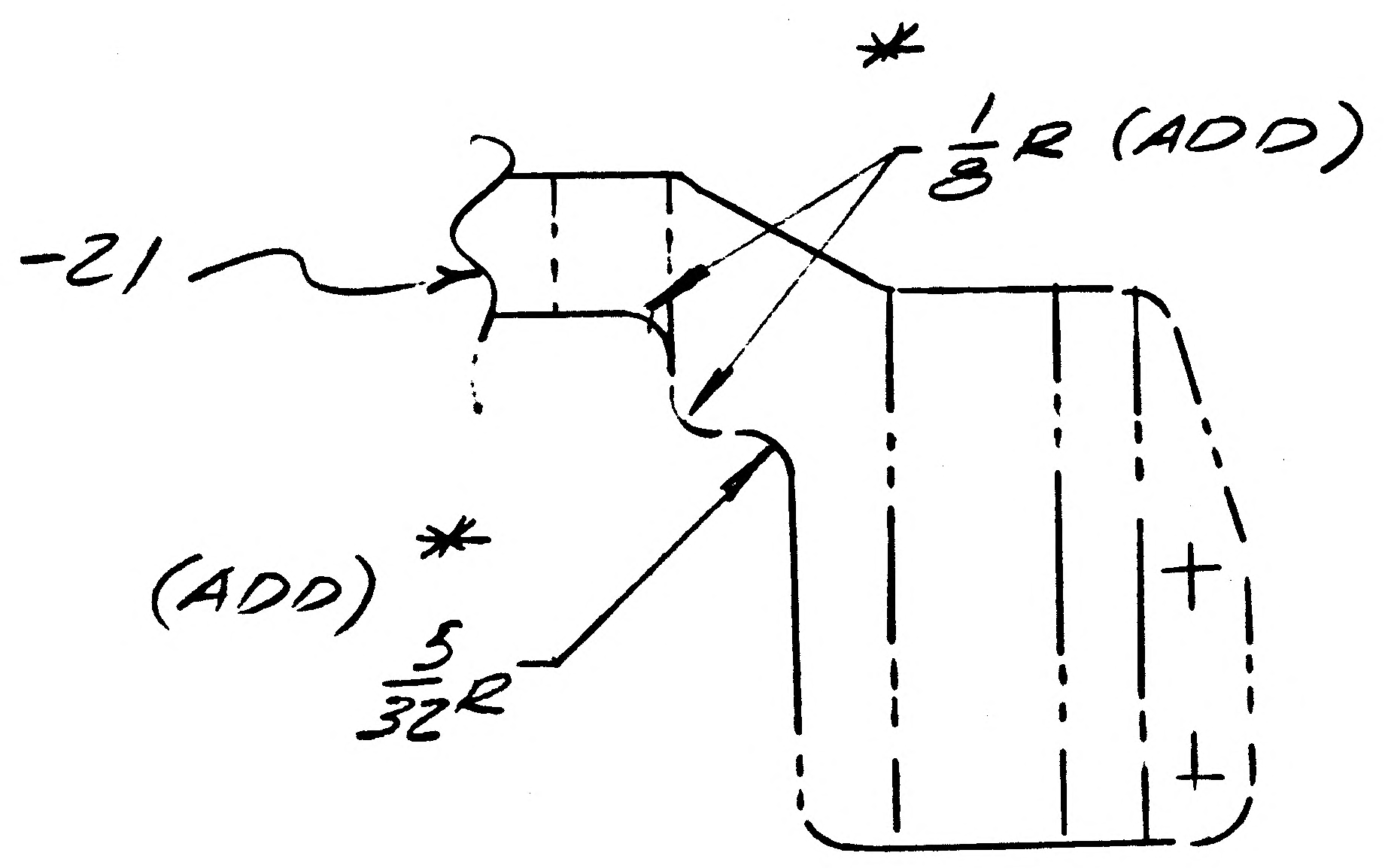
ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG LDW280-18286	EO NO. B1
CONTROL INFO NO. LM-5-19627	

IN FLD (ON-19) DIM $\frac{11}{16}$R & $\frac{1}{4}$R (5/8) $\frac{11}{32}$R & $\frac{1}{8}$R RESP.

*NOTE, DIMS ARE NOT TO BE INCORP ON DWG - LOFTED PART



REF EO A10

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 1244, CCA 667

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
DIMS REQ'D TO MFG PARTS	IN FLD (ON-19) $\frac{11}{32}$R & $\frac{1}{8}$R WERE $\frac{11}{16}$R & $\frac{1}{4}$R RESP; (ON-21) ADDED $\frac{5}{32}$ & $\frac{1}{8}$R(2)	✓ 35 34 33 05

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM3(33)	THRU LM15(45)	
	LFM420-2370-003		
	LDW420-2370 SER #1		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/1/68	4/20		Z	4-2-68	4-2-68	4/20	4/3/68
	3/KAT	V01						

PRIORITY		DRAWING NO.	EO NO.
C	BRKT, D/S INTERSTAGE BLANKET SUPPT EXPLOSIVE BOLT PROTECTION	LDW280-18286	B1

ISSUED BY LIAISON - MD REYES X 86755 SECTION V01/P. THORJUSEN GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1436
CONTROL INFO NO. LDW280B7426

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF
FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18272	B1	SEE DWG
-18273	B1	
-18281	A4	
-18283	B1	
-18286	B2	
-18290	B1	
-18301	B1	
-18312	B4	
LDW280 -18313	B2	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ LCD3587 PKG 54 PG 243, ECP U069, CCA1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: SAB 5-1-69 / VK 5/6/69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	5-5-69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO.: 1436

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280 EO NO. 1521
CONTROL INFO NO. LDW 280B 8109

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18272	SEE DWG	B2
273		B2
281		A5
283		B2
286		B3
290		B2
313		B3
316		A2
325		B2
LDW280-18326	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 29 & 30 & 92 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69; JK 8/8/9; Bauman 8-7-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					N			
DATE	7-29-69			7/29/69	8/2/69			8-7-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1521

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

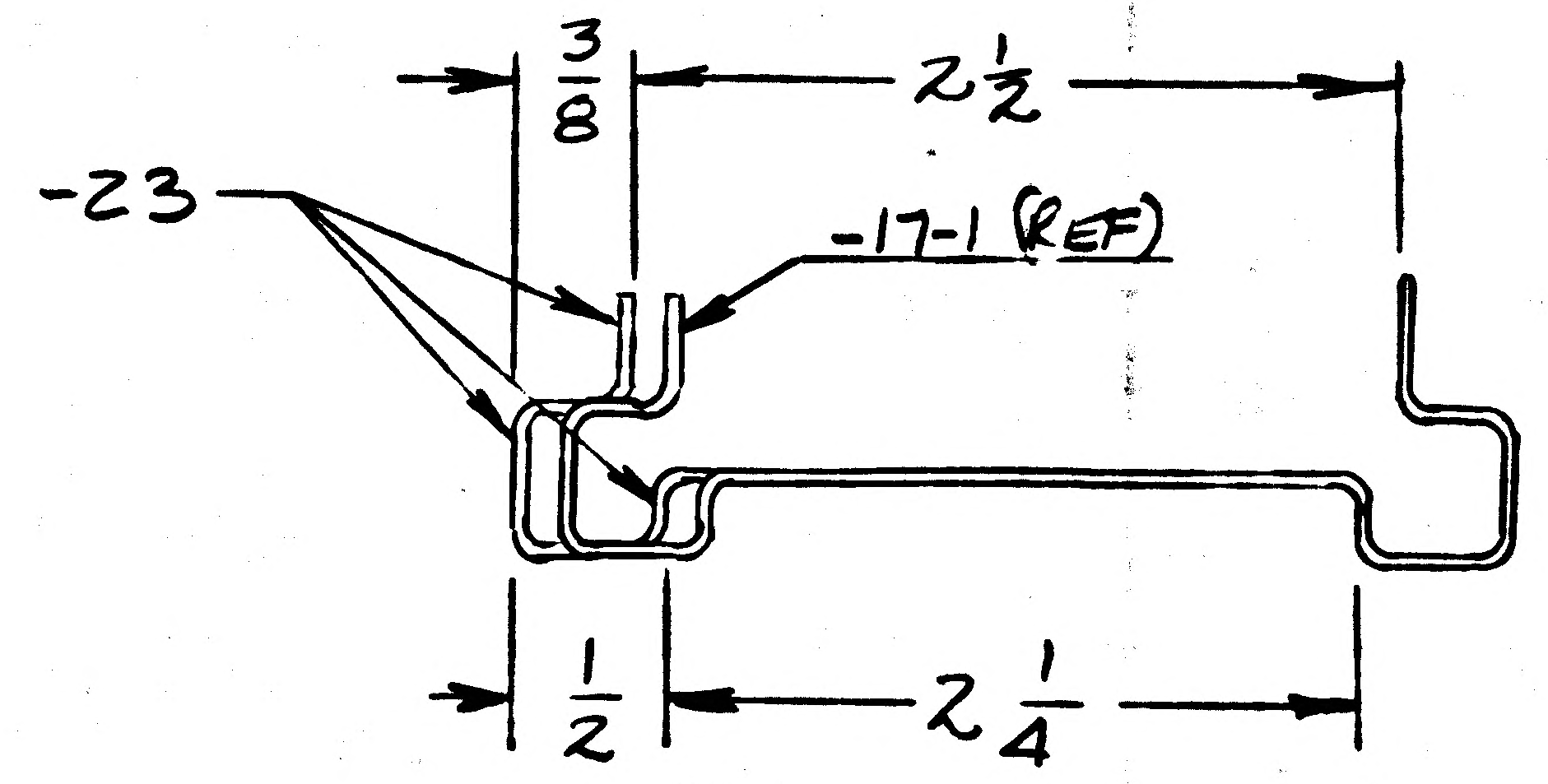
ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18286		EO NO. B4
CONTROL INFO NO. LM-5-22513		



REMOVE LM-10 (40)
THRU LM-14 (44), LTA-11 (23)
EFF FROM -17-1
MODEL BLOCK

LDW280-18286-23
-23 IDENTICAL TO -17-1
EXCEPT AS SHOWN
N/A LDW280-53649, 1 REQ'D

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD3890 PKG #5

REASON FOR EO: INTERFERENCE WITH FITH SHIELD

DESCRIPTION OF EO: ADDED -23. RESTRICTED -17-1, EFF WAS LM-3 (33) THRU LM-15 (45), LTA-11 (23)

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU LM-14 (44)	
		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY			GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓			-17-1	DATE 5-20-70			5/20/70	KC 5/13/70	CH 5-13-70	5/20/70	5/14/70
				VDI	SUPPORT	RELIAB. GROUP					

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRKT, D/S INTERSTAGE BLANKET SUPPT EXPLOSIVE BOLT PROTECTION	LDW 280-18286	B4

ISSUED BY LIAISON E. V. BERGEMAN X-86755 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18286
EO NO. A5
CONTROL INFO NO. LDW280B0023

IN M/B CHANGE N/A FOR LM-3(33) THRU LM-15(45)

PART NO.	NEW N/A	N/A WAS
-11 (1REQD/MOD)	LDW280-53646	LDW280-28646
-13 (1 REQD/MOD)	LDW280-53649	LDW280-28649
-13 (1REQD/MOD)	LDW280-53646	LDW280-28646
-15 (2 REQD/MOD) -16 (2 REQD/MOD)	LDW280-53644	LDW280-28644
-17 (1 REQD/MOD)	LDW280-53649	LDW280-28649

FITH

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1244 (5)

REASON FOR EO: TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO:
FOR -11(1) N/A LDW280-53646 WAS LDW280-28646
-13(1)-17(1) N/A LDW280-53649 WAS LDW280-28649
-13(1) N/A LDW280-53646 WAS LDW280-28646
-15(2)-16(2) N/A LDW280-53644 WAS LDW280-28644

GAEC EO RELEASE: C JK 11/16/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY								
DATE	11/16/67			11-10-67	11/13/67		11/16/67	11-16-67
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: BRACKET D/S INTERSTAGE BLANKET SUPPORT EXPLOSIVE BOLT PROTECTION

DRAWING NO. LDW280-18286

EO NO. A5

CDR 11/17/67
ISSUED BY V. A. CHRISTINA / P. THORJUSEN SECTION VDI X1392 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

A

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18286
EO NO. A7
CONTROL INFO NO. LM 29-1144

① THIS PORTION IS A REVISION OF EO A5, DELETE LINE:

PART NO	NEW N/A	N/A WAS
DELETE -11 (1 REQD/MOD)	LDW280-53646	LDW280-28646

② IN F/D & B/M: ON -11-1 ADD LM-3(33) THRU LM-15(45) EFF. N/A LDW280-53646, (1) REQD/MOD
FOR -11 REMOVE LM-3(33) THRU LM-15(45) EFF

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

(29)

REASON FOR EO:
① NUMBER WRITTEN IN ERROR.
② TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO:
① REF EO A5 DELETED LINE FOR, -11 ② ADDED -11-1 (1) REQD/MOD N/A LDW280-53646 & DELETED -11. EFF LM-3 THRU LM-15.

GAEC EO RELEASE

MODEL	EFFECTIVITY		
	~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	~~SUB-CONTR UNIT NO.~~
LM		LM-3 (33) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQD
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				—					
DATE	1/16/68			—	1-4-68	1/15/68	1/24/68	[illegible]
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[illegible]

PRIORITY C

DRAWING TITLE: BRACKET D/S INTER STAGE BRACKET SUPPORT EXPLOSIVE BOLT PROTECTION

DRAWING NO. LDW280-18286

EO NO. A7

ISSUED BY LIAISON C.J. MONTEBELLO X7930 V.A. CHRISTINA SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18287

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23608	LTA-3DR(46)	4
PART NO. LDW280-18287-11		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LCD19-1242 WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO. 227 JK(CO) MP-14-4/12/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE ✓

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE

DRAWN BY HERB. SCHWEITER 4/7/67

LAYOUT BY J. BOHUN

CHECKED BY 4·10·67

GR LEADER J. Wolf 4/10/67

VEH DES INT J. Lusateri 4/10/67

STRUCTURES 4/10/67

STRUCTURES 4/10

WEIGHTS

RELIABILITY

PROJ ENGR R. McCarbee 4-11-67

REL GROUP 4-12-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE ~ FILL & DRAIN
SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18287

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR = 4/21/67

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18287-11	E	BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.050 × 8 × 8	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18287

SCALE NONE

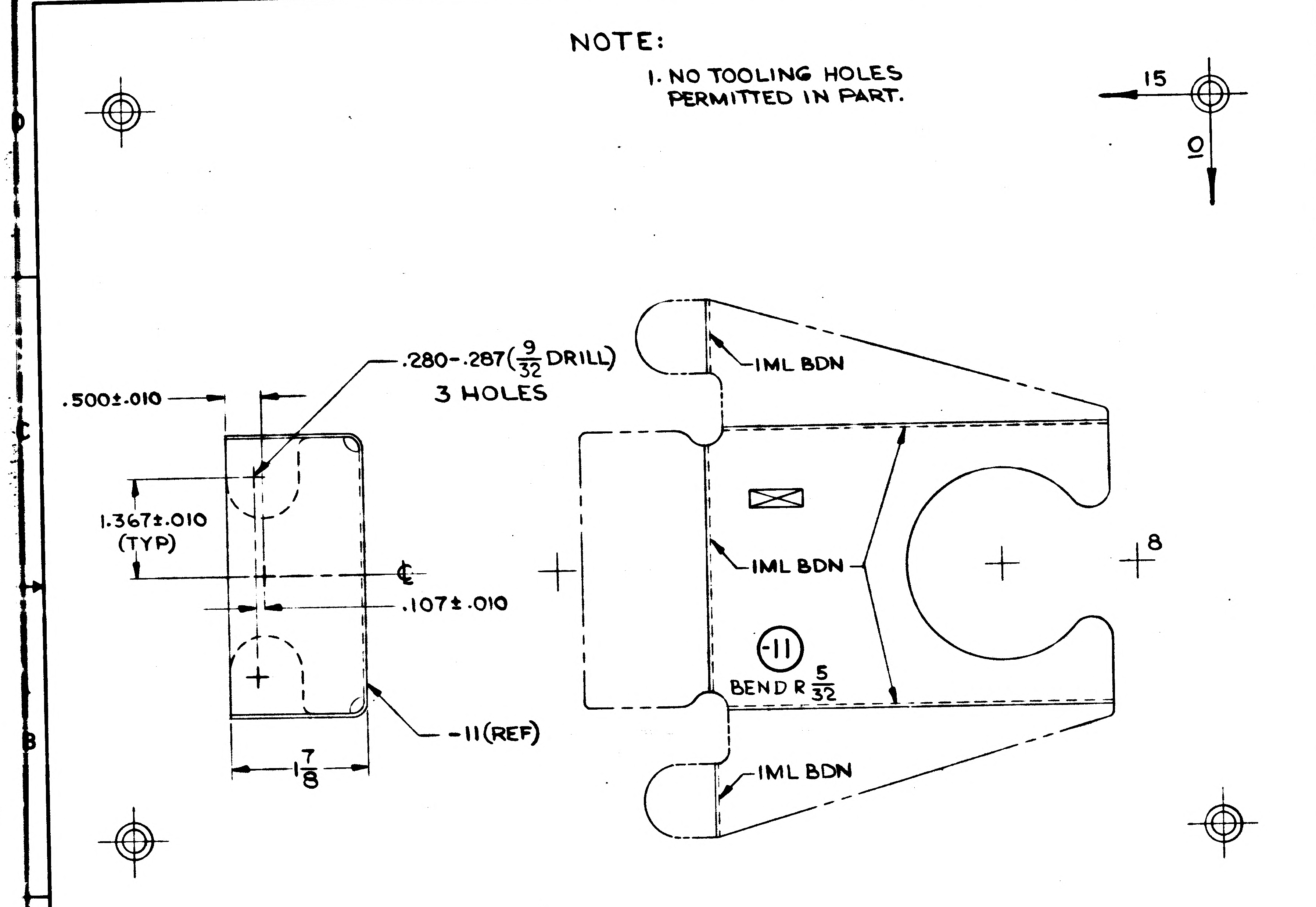
SHEET 2.00

ENG 77.2 7-66

01

NAS 9-1100

NOTE:
1. NO TOOLING HOLES PERMITTED IN PART.



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18287
	SCALE FULL		SHEET 3.00

LDW280-18287

LDW280-18287

K2

FOR PHOTO REPRODUCTION

01

NAS 9-1100

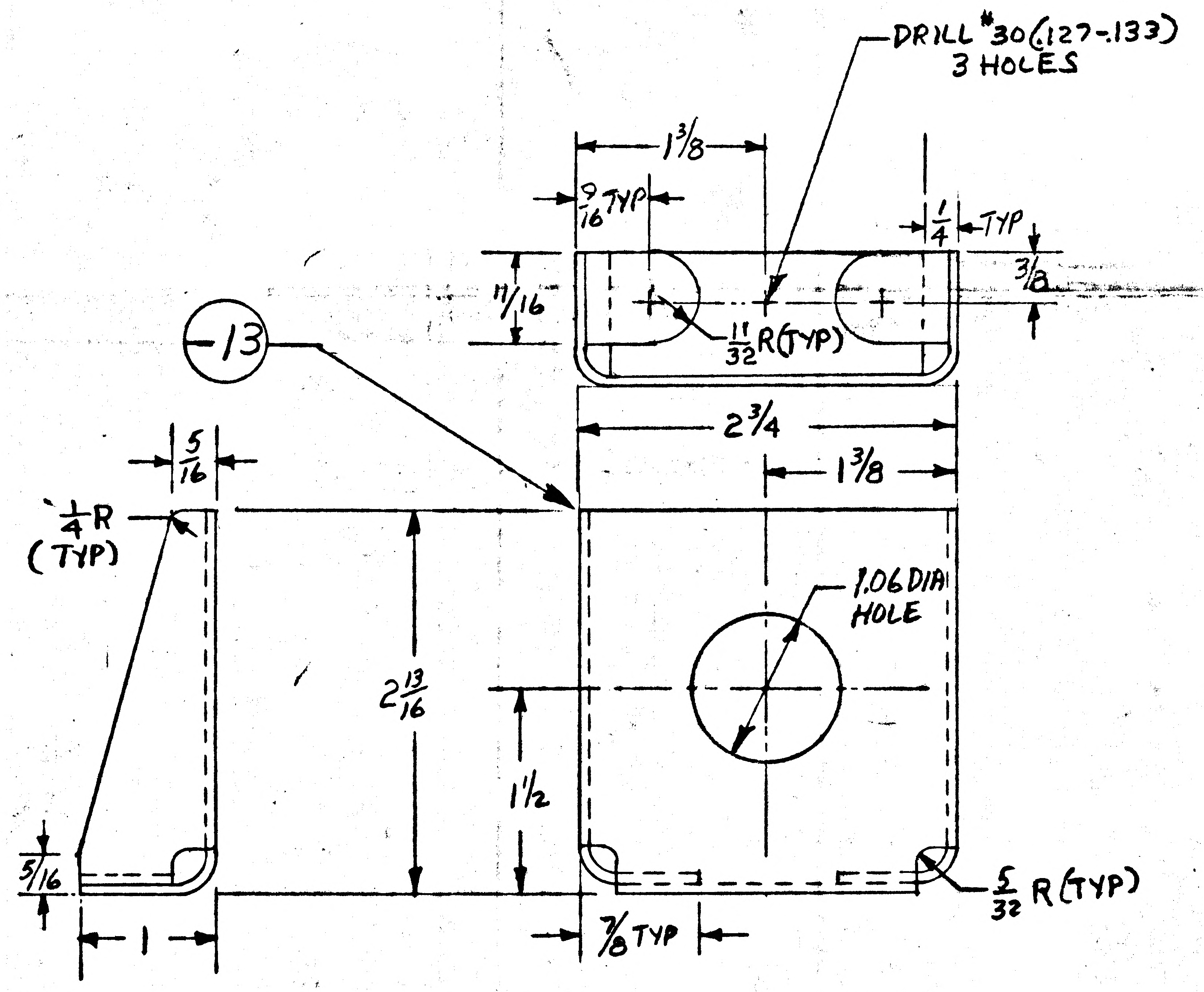
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18287
EO NO. A1
CONTROL INFO NO. LDW280B2306

IN MODEL BLOCK FOR -11
ADD N/A LDW280-23608 -LTA3(13) 4 REQD

IN FIELD & B/M ADD -13 BRACKET
MADE FROM AL ALY SH, QQ-A-250/4, 2024-T3, .063 THK, BR 7/32
N/A LDW280-23608 -LTA3(13) 4 REQD
FINISH 88, 19 T E


DRILL #30 (.127-.133) 3 HOLES
1 3/8
9/16 TYP
1/4 TYP
3/8
11/16
11/32 R (TYP)
-13
2 3/4
1 3/8
5/16
1/4 R (TYP)
1.06 DIA HOLE
2 13/16
1 1/2
5/32 R (TYP)
5/16
1
7/8 TYP

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2131A CCA 708

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
DOCKED MODAL TEST DISCONNECT SUPPORT	ADDED -13 IN MODEL BLOCK FOR -11 ADDED N/A LDW280-23608, LTA3(13) 4 REQD	JC 2/29/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA3(13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK ✓	SCRAP

	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	2/26/68				2/27/68	2/27/68		2/26/68	2-28-68
	B	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S-FILL & DRAIN SUPPORT	LDW280-18287	A1

2-26-68
ISSUED BY J. Bohun X1392 SECTION Equip Lines (VDI) GROUP NO. 332 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18287
EO NO. A2
CONTROL INFO NO. LDW280B2851

FOR -13

N/A LDW280-23608 S/B N/A LDW280-23587
EFF LTA-3(13)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2131 PRG 5 CCA 708

REASON FOR EO: DOCKED MODAL TEST DISCONNECT SUPPORT

DESCRIPTION OF EO: FOR -13
N/A LDW280-23587 WAS LDW280-23608

GAEC EO RELEASE: JK 4/4/68 (5) C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT REQD SCRAP

APPROVED BY								
DATE	4/3/68			2/2/68	4/5/68		4/3/68	4-4-68
—	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: D/S FILL & DRAIN BRACKET SUPPORT

DRAWING NO. LDW280-18287

EO NO. A2

CDC 4/10/68
ISSUED BY G.BARNES / P.THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1794
CONTROL INFO NO. LDW 280B 9478

IN MODEL BLOCK FOR THE FOLLOWING DASH NUMBERED PARTS OF THE LISTED DRAWINGS ADD LTA-11(23) EFFECTIVITY, APPROPRIATE NOTED NEXT ASSEMBLY AND QUANTITY REQD PER NEXT ASSEMBLY

DRAWING NUMBER	DASH NUMBER *	QTY REQD PER N/A	NEXT ASSEMBLY**	CHANGE NUMBER
✓ LDW280M16302	-11	2	LDW280-17388	C2
✓ M17352	-1	2	-17388	B7
✓ M17353	-1	2	-17388	B5
✓ -18287	-13	4 EACH	-60792	A3
M16145	-11, -13	2 EACH	-16077	A2
-16076	-11	4	LDW280-16077	A2
-16077	-1, -3	2 EACH	LTM280-31205	A4
-16090	-19	2	LDW280-17388	A5
-17848	-11, -21	1 EACH	LTM280-31205	B5
LDW280 -17926	-15	1	LDW280-17388	C2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☒ LCD 3994 PKG5, PG6

REASON FOR EO: ADDITION OF REQUIREMENTS FOR LTA-11 (23)

DESCRIPTION OF EO: FOR DASH* ADDED NEXT ASSEMBLY**, LTA-11(23) EFFECTIVITY AND QUANTITY REQD PER N/A

GAEC EO RELEASE: (5) VK 12/16/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	PST	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	12-15-69 VDI			12-15-69	12/15/69		12/15/69	12/16/69

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO. LE0280
EO NO. 1794

12-19-69
ISSUED BY HUGH RYAN 12-11-69 X86046
SECTION VDI (EQUIP LINES)
GROUP NO. 332
PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00 1.10 2.00 3.00				✓		EO A1 LCD-1220 ①	INITIAL DRAWING RELEASE. PARTS MADE PER EO J.J.	LM-1 THRU LM-15	NOT	REQ'D	G. ENGEL 20 JUNE 1967 JK		

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	RELIABILITY	WEIGHTS
	A		J. Pusateri 8/4	WJH 8/3/6			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18290	A (A)

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18290 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51555	LM-15(45)	1EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
		LM-3(33)	
		LM-2(32)	
LM	LDW280-51555	LM-1(31)	1EA

PART NO. LDW280-18290-11,-13 -15,-17 & -19

GAEC SCH NO. 50-2

WORK PKG. FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -19

GRUMMAN REL INFO A

PRIM NO.	JK(001)		
207	MP-16A-8/7/7		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.010 ±0°30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD-1220

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	G. ENGEL 6/20/67	RELIABILITY	
LAYOUT BY	G. BARNES		
CHECKED BY	J. Kartzman 6-26-67		
~~GRP LDR~~			
VEH DES INT	J. Troland 8/2/67		
STRUCT	8/3	PROJ ENGR	J. J. McCloughan 8/5/67
STRUCT		REL GROUP	Hoglavicka 8/7/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRUT
DESCENT STAGE SPACECRAFT LM
ADPT UMBILICAL CABLE SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18290 | A (A)

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18290-19	E	SPACER	TITANIUM BAR	MIL-T-9047	6AL-4V, ANL	1" SQ X 1/4	NONE	NONE	
						CLASS 5					
		LDW280-18290-17	E	BRACKET	TITANIUM SH	MIL-T-9046	6AL-4V, ANL	.040 X 1 X 1 7/8		126	
						TYPE III COMP. A					
		LDW280-18290-15	E	BRACKET	TITANIUM SH	MIL-T-9046	6AL-4V, ANL	.032 X 7/8 X 1 1/2		126	
						TYPE III COMP. A					
		LDW280-18290-13	E	BRACKET	TITANIUM SH	MIL-T-9046	6AL-4V, ANL	.040 X 2 1/4 X 5 1/4		126	
						TYPE III COMP. A					
		LDW280-18290-11	E	TUBE	TITANIUM TUBE	AMS4942	COML PURE	1/2 OD X .016 X 7 1/2	NONE	126	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
126	DRY LUBE FILM	LSP14-10300, TYPE I						

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18290 | A

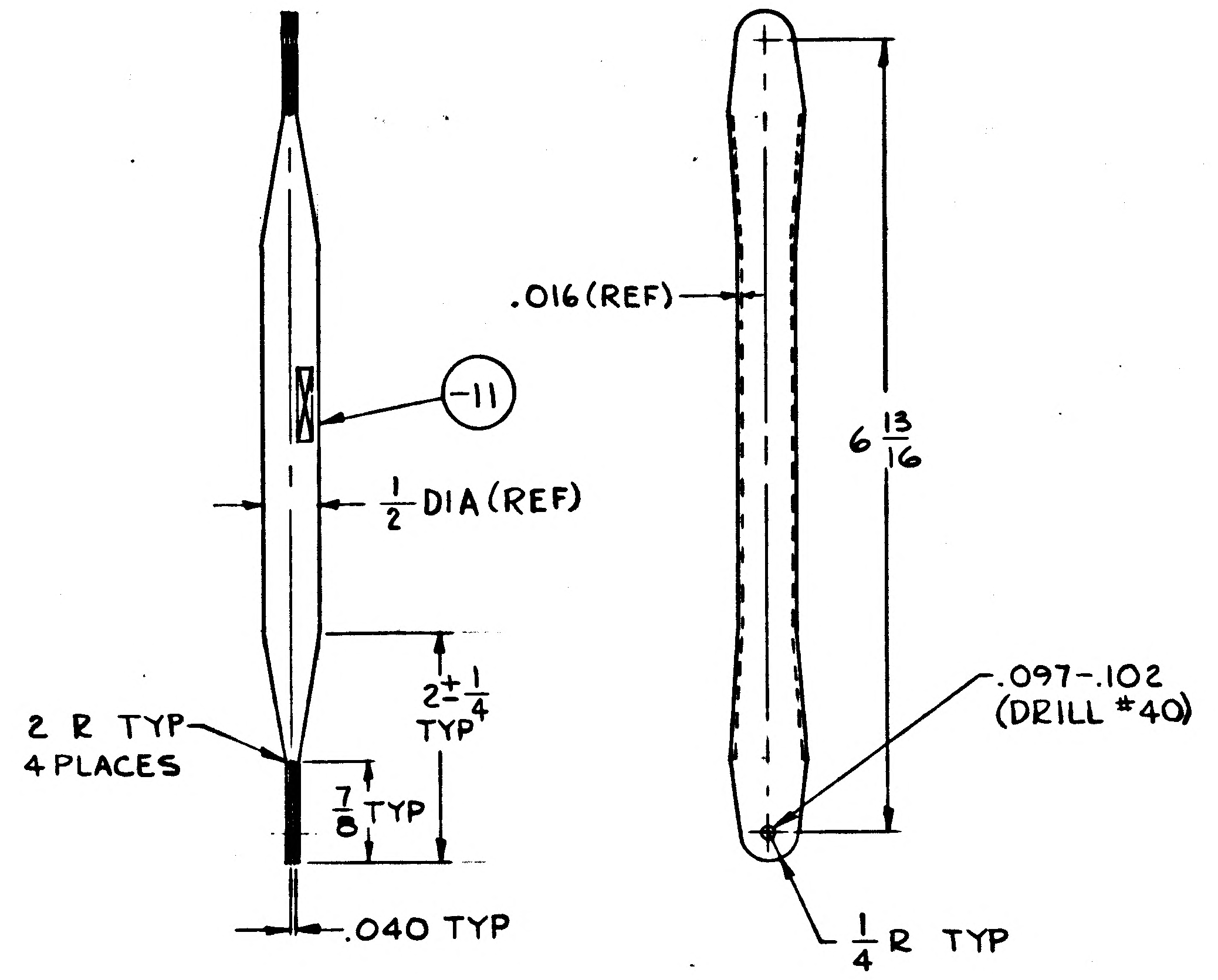
A

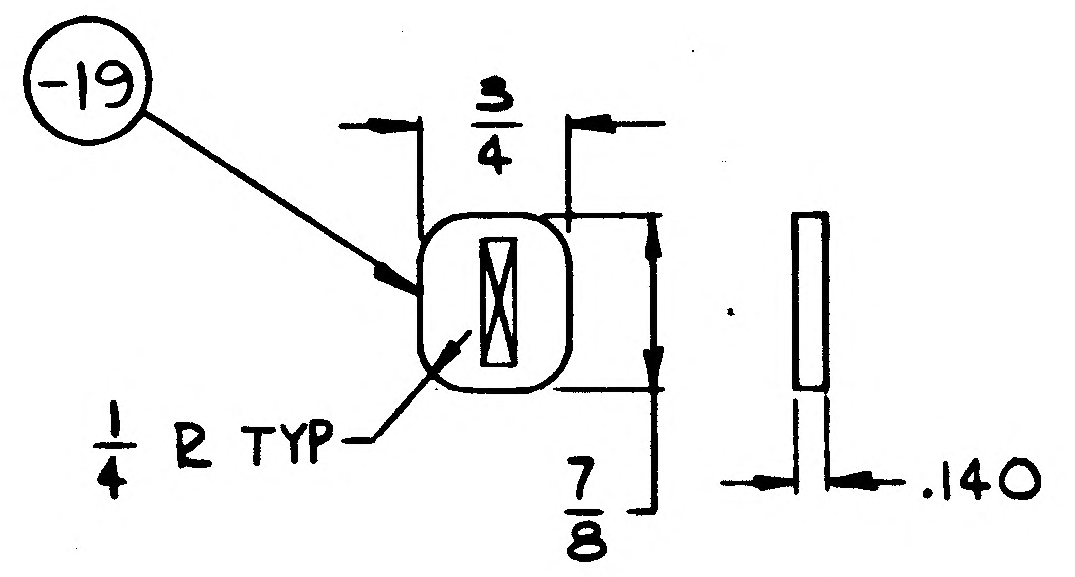
SCALE NONE | SHEET 2.00

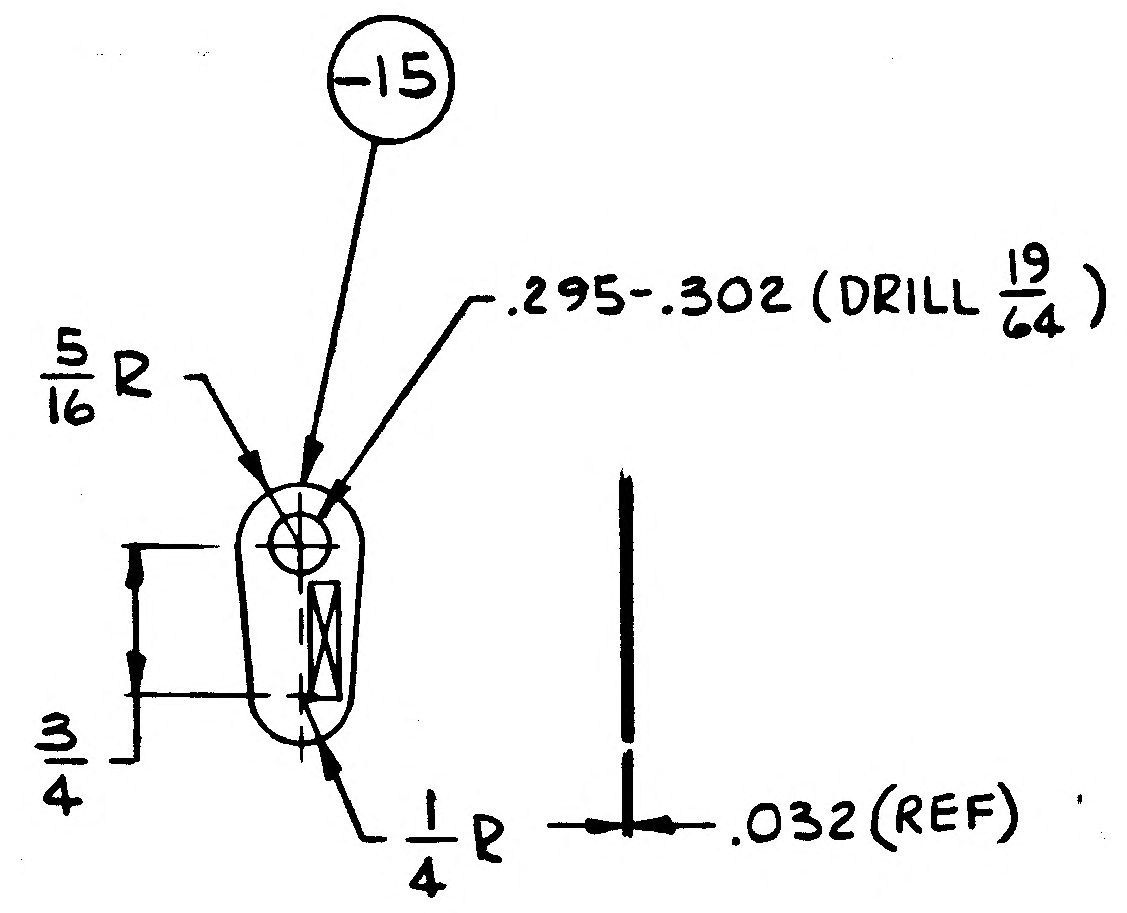
ENG 77.2 7-65

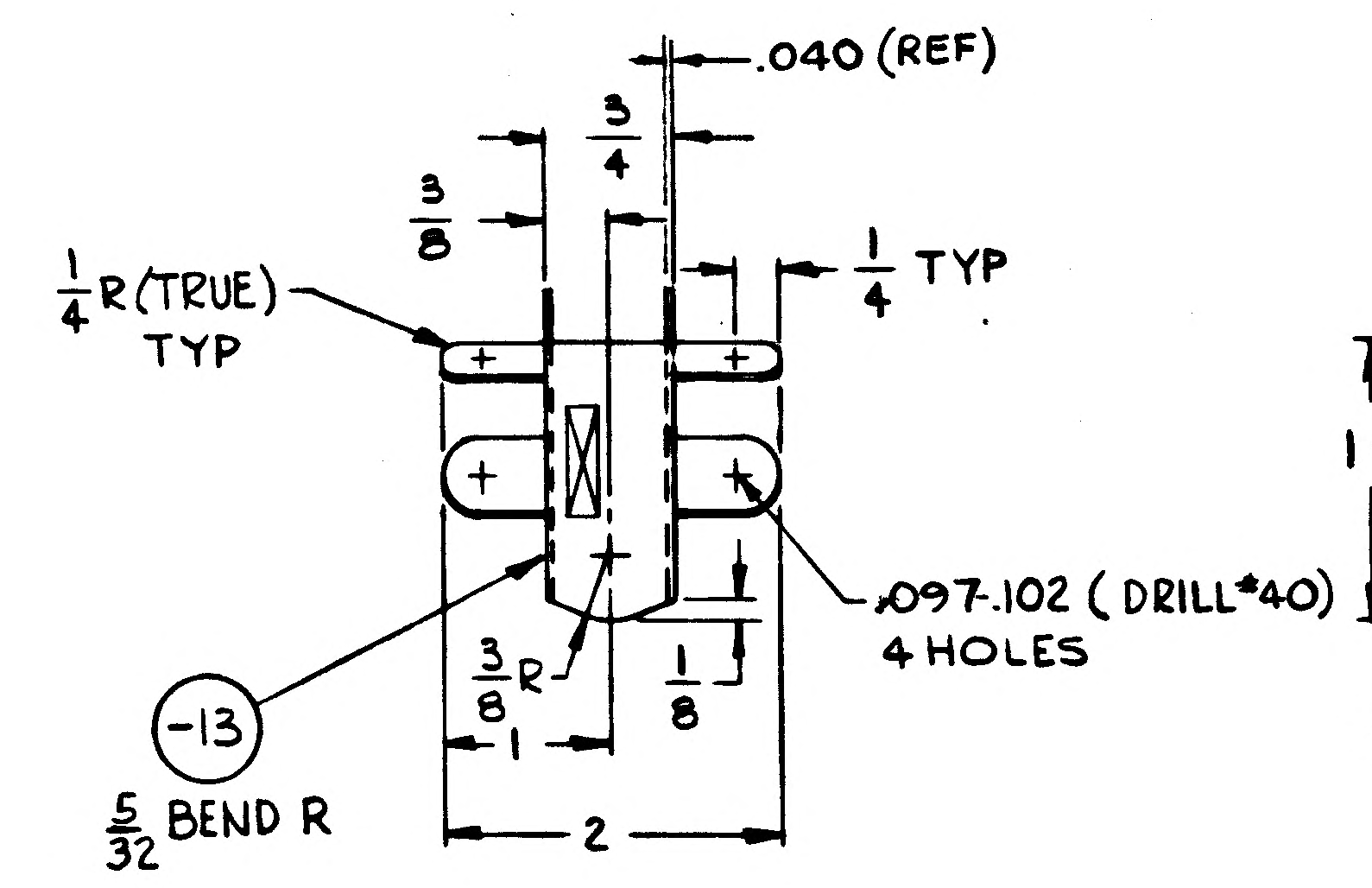
01

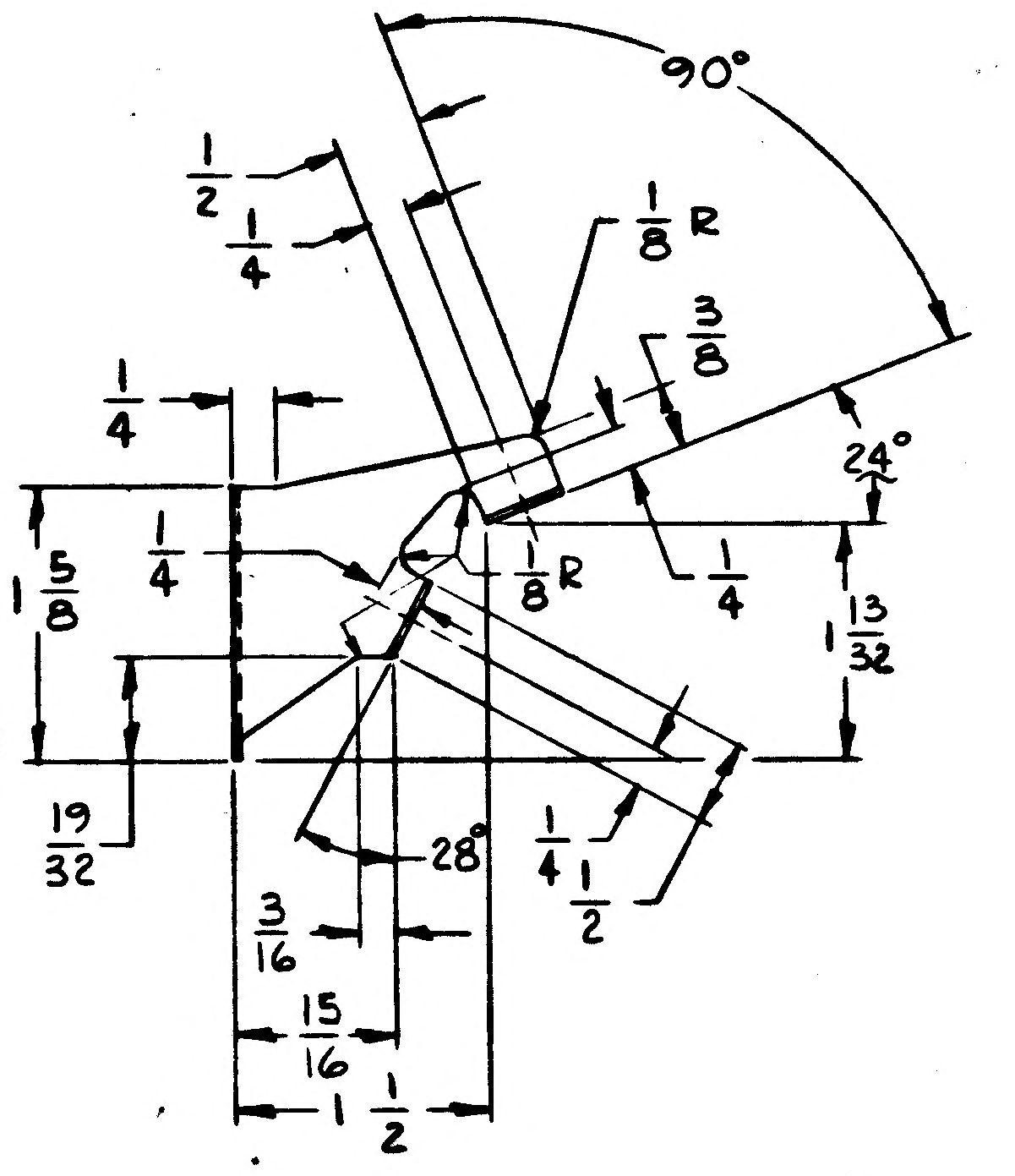
NAS 9-1100

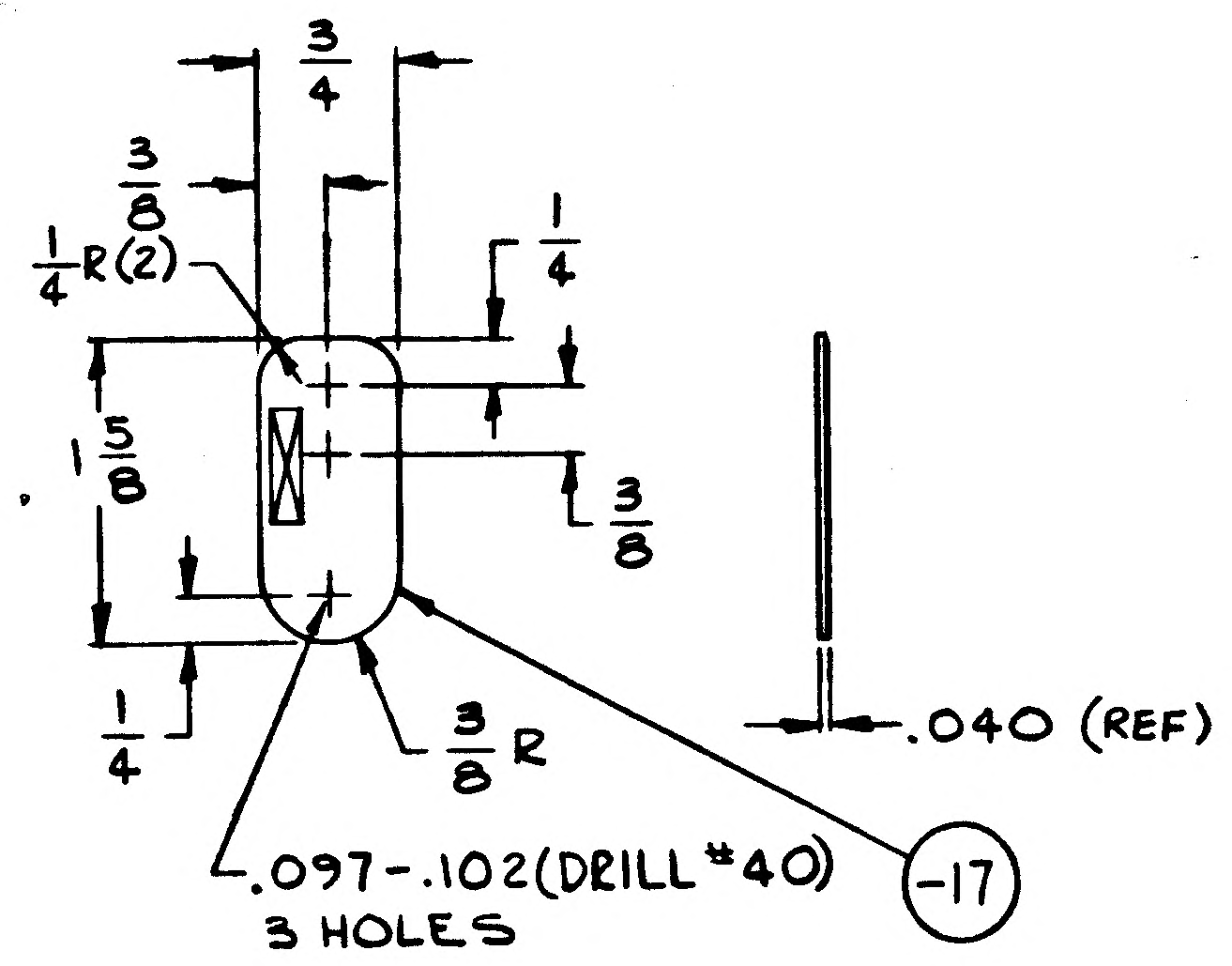

-11
.016 (REF)
1/2 DIA (REF)
2 R TYP
4 PLACES
2 1/4 TYP
7/8 TYP
.040 TYP
6 13/16
.097-.102
(DRILL #40)
1/4 R TYP


-19
3/4
1/4 R TYP
7/8
.140


-15
5/16 R
.295-.302 (DRILL 19/64)
3/4
1/4 R
.032 (REF)


.040 (REF)
3/8
3/4
1/4 R (TRUE)
TYP
1/4 TYP
.097-.102 (DRILL #40)
4 HOLES
-13
3/8 R
1
1/8
2
5/32 BEND R


90°
1/2
1/4
1/8 R
3/8
1/4
24°
1 5/8
1/4
1/8 R
1/4
1 13/32
19/32
28°
1/4
1/2
3/16
15/16
1 1/2


3/4
3/8
1/4 R (2)
1/4
1 5/8
3/8
1/4
3/8 R
.040 (REF)
.097-.102 (DRILL #40)
3 HOLES
-17

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

01

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18290	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1436
CONTROL INFO NO. LLW280B7426

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18272	B1	SEE DWG
-18273	B1	
-18281	A4	
-18283	B1	
-18286	B2	
-18290	B1	
-18301	B1	
-18312	B4	
LDW280 -18313	B2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 54 PG 2&3, ECP U069, CCA1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: SAB 5-1-69; VC 5/6/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	5-5-69

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO.: 1436

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING COPP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280		EO NO. 1521
CONTROL INFO NO. LDW 280B 8109		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW 280-18272	SEE DWG	B2
273		B2
281		A5
283		B2
286		B3
290		B2
313		B3
316		A2
325		B2
LDW280-18326	SEE DWG	B2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 29 & 30 & 92 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69 JK 8/8/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

APPROVED BY				N		Bauman	
DATE	7-29-69			7/29/69	8/2/69		8-7-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1521

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18 300

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW 280-51110	LM-1(31)	7 EA
PART NO. LDW280-18300-31		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51110	LM-1(31)	1 EA
PART NO. LDW280-18300-11, -13, -14, -15, -17, -19, -21, -23, -25, -27, -29		GAEC SCH NO. 52	

WORK PACKAGE FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO			
		PRIM NO.	JK(001)		
LAST DASH NO. USED	-29	207	MP-14	4/28/67	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE
LCD 19-1244

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY			
LAYOUT BY	E. FRANK		
CHECKED BY			
GR LDR	J. Stalcord 4/27/67		
VD1	J. Fusatere 4/27		
STRUCT	4/27	PROJ ENGR	D.J. McGlinchey 4/27/67
STRUCT		REL GROUP	4-28-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN
DES STG -Y UPPER DECK
REINFORCEMENT - INBOARD

SIZE B | CODE IDENT NO. 26512 | LDW280-18300
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18300-31	E		ANGLE	AL ALLOY SHT	QQ-A-250/4	2024	.063 x 1 1/2 x 10	T3	88	
	LDW280-18300-29			DOUBLER	AL ALLOY SHT	QQ-A-250/4	2024	.063 x 2 1/2 x 3	T3	88	
	-27			ANGLE				.063 x 2 1/2 x 5 1/2			
	-25			ANGLE				.040 x 2 x 3 3/4			
	-23			PLATE				.063 x 2 x 10			
	-21			SHIM				.190 x 1 1/4 x 10			
	-19			SHIM				.250 x 1 1/4 x 10			
	-17			CLIP				.032 x 1 3/4 x 2			
	-15			CLIP				.032 x 1 1/2 x 2			
	-14			CHANNEL				.032 x 2 3/4 x 10 1/2			
	-13			CHANNEL				.032 x 2 3/4 x 10 1/2			
	LDW280-18300-11	E		SKIN	AL ALLOY SHT	QQ-A-250/4	2024	.050 x 10 3/4 x 56 3/4	T3	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T3	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18300

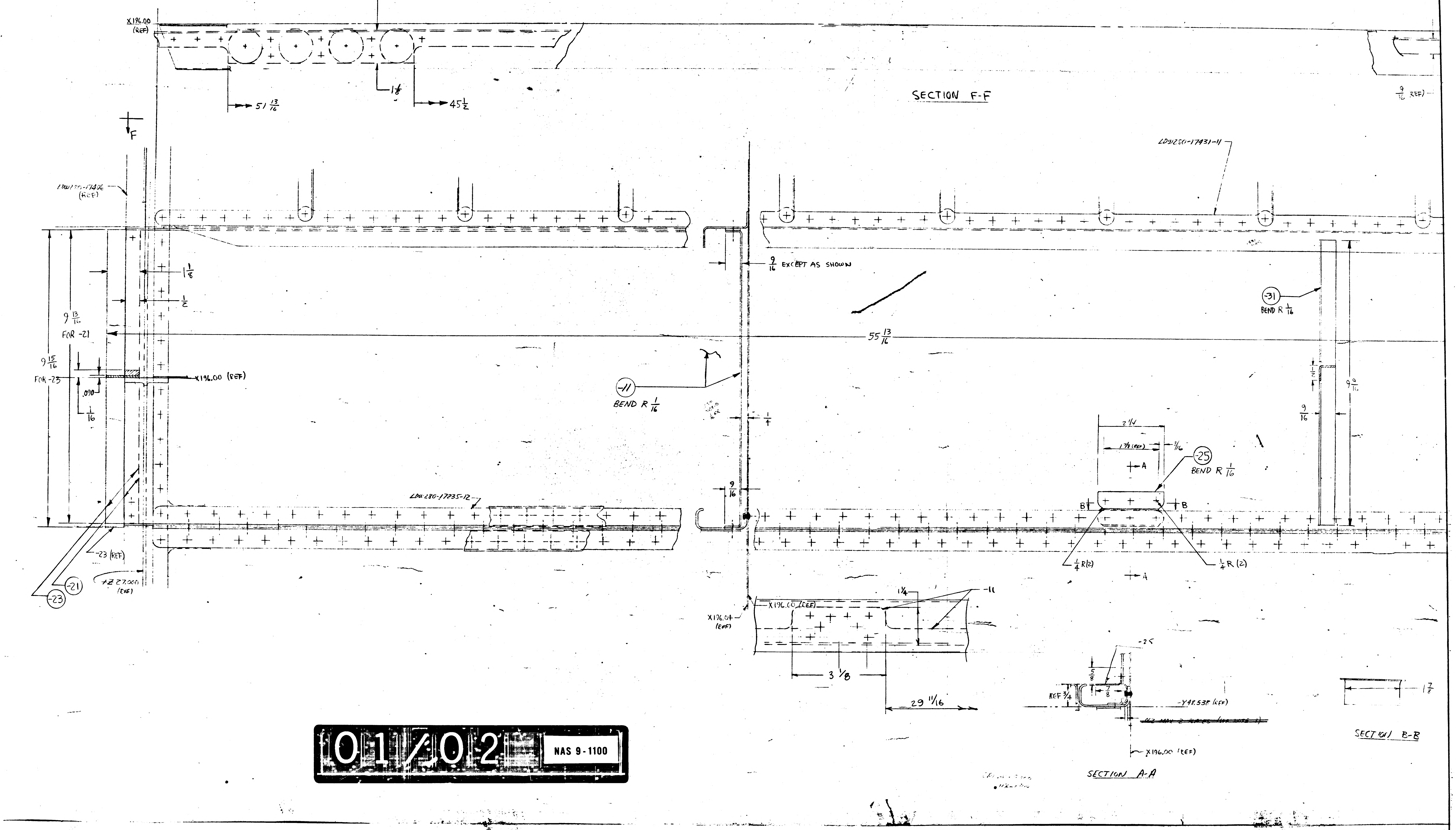
SCALE NONE

SHEET 2.0 OF 3

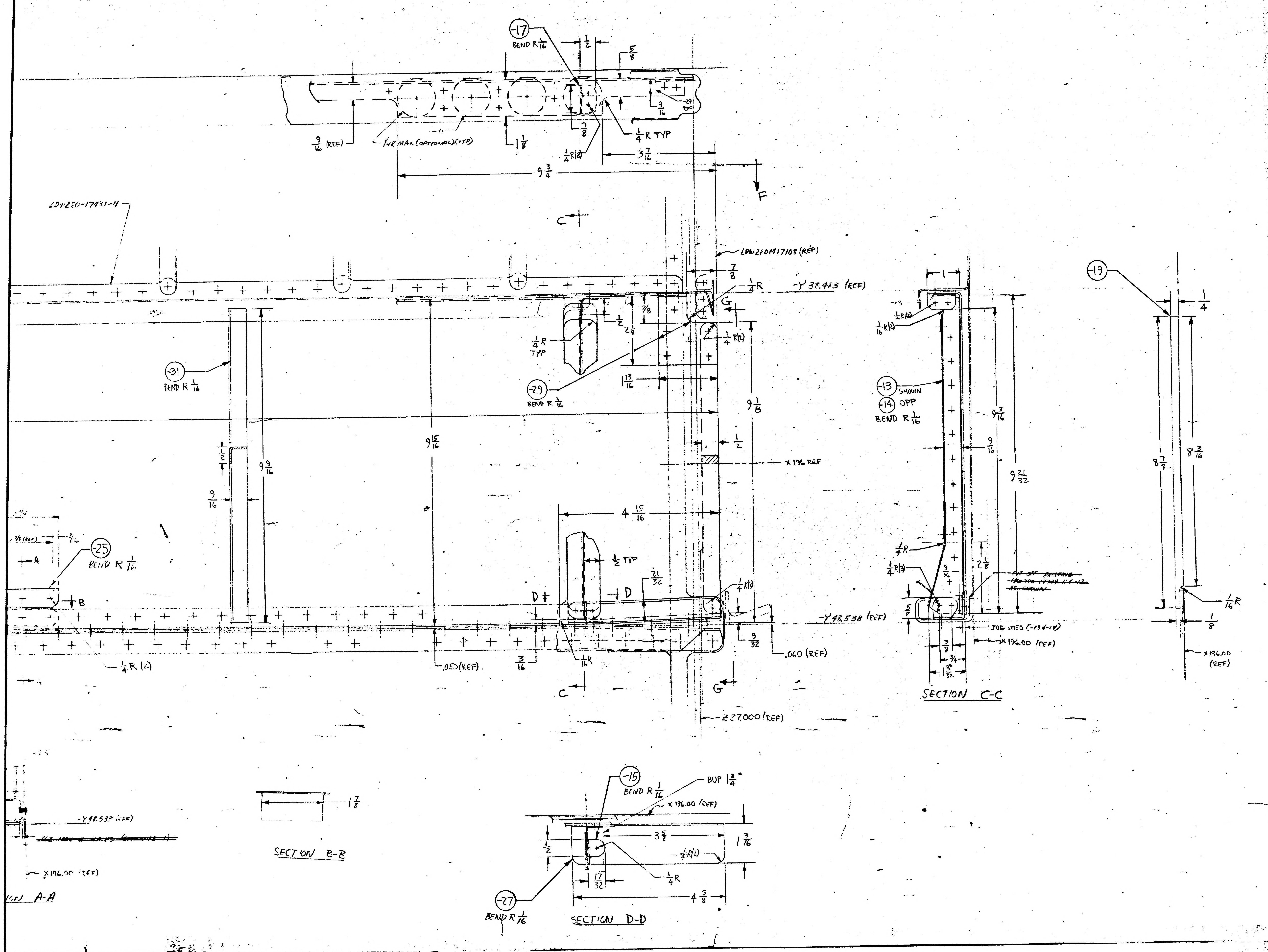
ENG 77.2 5-64

01

NAS 9-1100


X196.00 (REF)
51 13/16
1 1/8
45 1/2
SECTION F-F
9/16 REF
LDW250-17431-11
F
LDW280-17436 (REF)
9/16 EXCEPT AS SHOWN
-31
BEND R 1/16
1 1/8
1/2
9 13/16 FOR -21
9 15/16 FOR -23
55 13/16
X196.00 (REF)
.090
1/16
-11
BEND R 1/16
1/4
2 1/4
1 7/8 (REF)
1/16
A
-25
BEND R 1/16
9/16
1/2
9 9/16
9/16
LDW280-17235-12
B
B
1/4 R (2)
1/4 R (2)
A
-23 (REF)
+Z 27.000 (REF)
-21
-23
X196.04 (REF)
X196.00 (REF)
1 1/4
-11
3 1/8
29 11/16
-25
5/8
7/8
REF 3/4
-Y48.538 (REF)
X196.00 (REF)
SECTION A-A
1 7/8
SECTION B-B

01/02 NAS 9-1100


-17 BEND R 1/16
1/2
5/8
9/16 (REF)
-11
1/4 R MAX (OPTIONAL) (TYP)
7/8
1 1/8
1/4 R (2)
1/4 R TYP
-29 REF
3 7/16
9 3/4
F
C
LDW280-17431-11
LDW280M17108 (REF)
7/8
1/4 R
-Y 38.483 (REF)
G
1/4 R TYP
2 1/8
1/4 R (2)
-29 BEND R 1/16
1 13/16
9 1/8
-31 BEND R 1/16
1/2
9 9/16
9/16
9 15/16
1/2
X 196 REF
4 15/16
1/2 TYP
21/32
-25 BEND R 1/16
A
B
D
1/4 R (2)
-Y 48.538 (REF)
.050 (REF)
3/16
1/16 R
9/32
.060 (REF)
C
G
-Z 27.000 (REF)
-13
1/16 R (2)
-13 SHOWN
-14 OPP
BEND R 1/16
9 3/16
9/16
9 21/32
1/4 R
1/4 R (2)
2 1/8
5/8
9/16
CUT OFF EXISTING
JOG .050 (-13 & -14)
X 196.00 (REF)
3/8
3/4
1 3/32
SECTION C-C
-19
1/4
8 7/8
8 3/16
1/16 R
1/8
X 196.00 (REF)
1 7/8
-Y 48.538 (REF)
X 196.00 (REF)
SECTION B-B
SECTION A-A
-15 BEND R 1/16
BUP 1 3/4
X 196.00 (REF)
3 5/8
1 3/16
1/2
1/4 R (2)
1/4 R
17/32
4 5/8
-27 BEND R 1/16
SECTION D-D

NOTES:

1. NO TOOLING OR PILOT HOLES PERMITTED IN PARTS
2. ALL INFORMATION NOT REQD FOR MANUFACTURE OF DETAIL PARTS IS FOR REFERENCE ONLY

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 45

LAYOUT RELEASE – MAY BE REDRAWN ON PRODUCTION FORMAT.

FITH

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LEM	SIZE J	CODE IDENT NO. 26512	LDW280-18500	
MODEL OR END ITEM	SCALE FULL		SHEET 3	

THIS IS AN ORIGINAL DW

LDW280-18300

02702 1 NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65 **FITH**

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

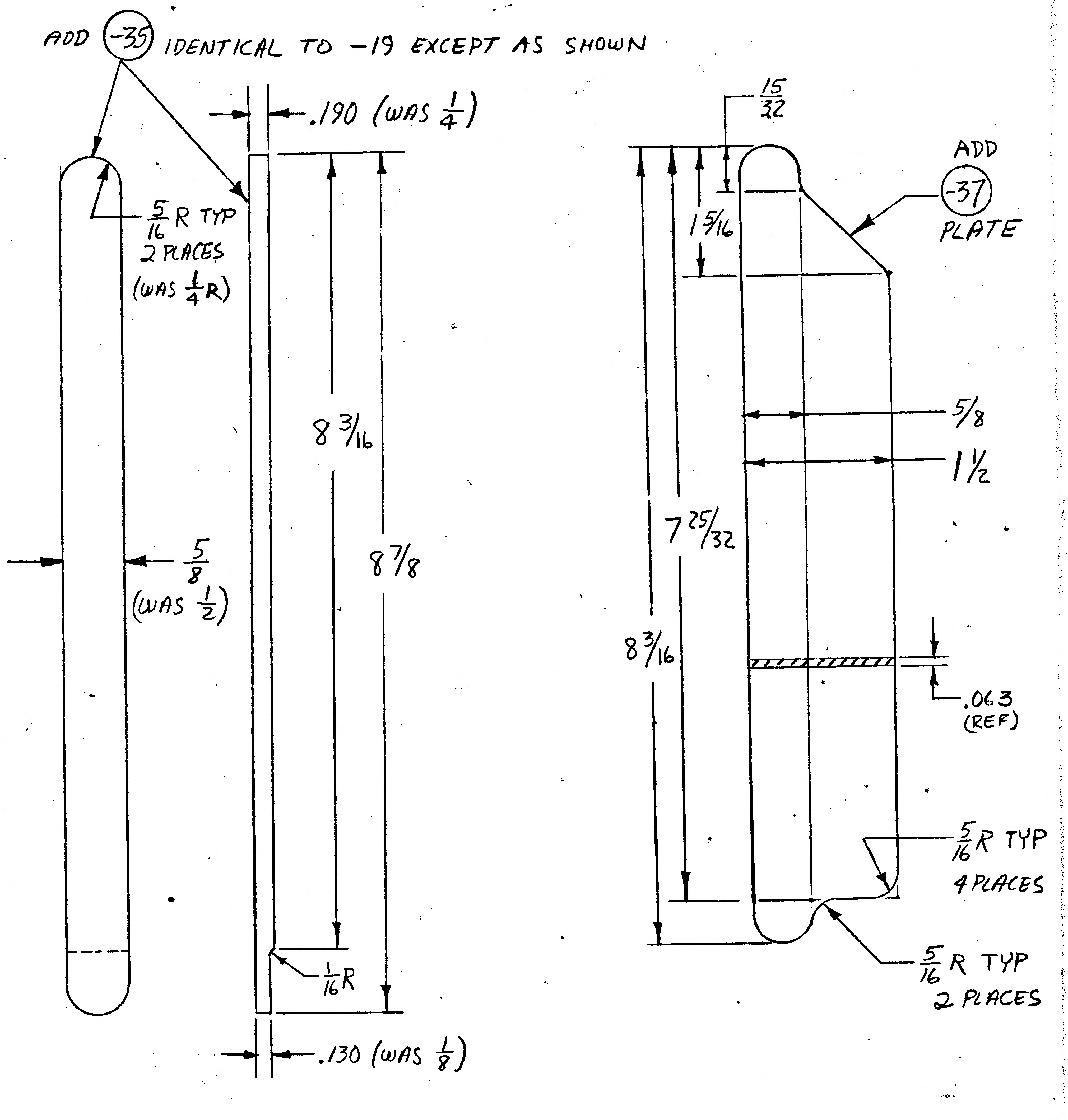
ENGINEERING ORDER

DWG. NO. LDW280-18300 EO NO. A2

CONTROL INFO NO. LDW280A-6737

IN F/D & B/M ADD LDW280-18300-35 & -37, EFF LM-1(31)
N/A LDW~~280-51110~~ 1 EA REQD. REMOVE LDW280-18300-19 EFF LM-1(31)
N/A LDW280-51110. MAKE -35 FROM .190, 2024-T4 AL ALY SHT, QQ-A-250/4,
FIN 88. MAKE -37 FROM .063, 2024-T4 AL ALY SHT, QQ-A-250/4,
FIN 88. I&T FOR -35&-37 = E

ADD (-35) IDENTICAL TO -19 EXCEPT AS SHOWN



.190 (WAS 1/4)
5/16 R TYP 2 PLACES (WAS 1/4 R)
5/8 (WAS 1/2)
8 3/16
8 7/8
1/16 R
.130 (WAS 1/8)
15/32
1 5/16
7 25/32
8 3/16
ADD (-37) PLATE
5/8
1 1/2
.063 (REF)
5/16 R TYP 4 PLACES
5/16 R TYP 2 PLACES

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD-1244	3

REASON FOR EO: TO PROVIDE FOR QUAD II FITH SHIELD.

DESCRIPTION OF EO: IN F/D, M/B, B/M ADDED -35 & -37, N/A LDW280-51110, EFF LM-1(31), REMOVED -19 EFF LM-1(31).

GAEC EO RELEASE: JK 5/2/67 e

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓			✓-19	DATE 5	5/2/67 VDI			5/2/67	5/2/67		5/2/67	5-2-67

PRIORITY: C

DRAWING TITLE: SKIN - D.S. -Y UPPER DECK REINFORCEMENT - INBOARD

DRAWING NO.: LDW280-18300 EO NO.: A2

ISSUED BY E. FRANK / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

A

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-18300 EO NO. A4
CONTROL INFO NO. LM 5-13336

REMOVE -27 & CREATE -41 (IDENTICAL TO -27 EXCEPT 4 5/8 DIMENSION WILL BE 4 3/4), N/A LDW280-51110, 1 & T=E, 1 REQD PER MODULE.

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐ LCD-1244

REASON FOR EO	TO INSURE PROPER FIT WITH MATING PART (FITH)
DESCRIPTION OF EO	REMOVED -27 & REPLACED IT WITH -41
GAEC EO RELEASE	5 C JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	-27

	WT	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	ALW				JFH	CH	DAME	
DATE	5/6				5-9-67	5-8-67	5-9-67	5-9-67
1	VD1							

PRIORITY: C
DRAWING TITLE: SKIN~DESCENT~-Y UPPER DECK RIENFORCEMENT~INBD
DRAWING NO.: LDW280-18300
EO NO.: A4

ISSUED BY ART WILSON X6510 SECTION VD1 GROUP NO. 335 PL 5

01 NAS 9-1100

A

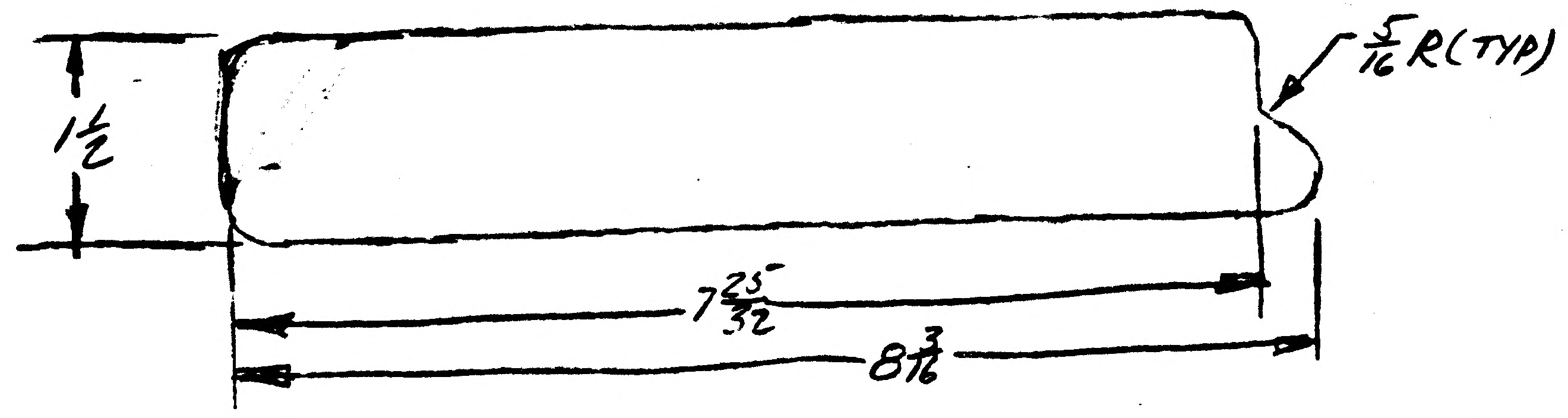
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18300
EO NO. A5
CONTROL INFO NO. LM-5-13425

IN FLO, B/M & M/B ADD -45, EFF LM-1, NHA LDW 280-57110, 1EA REQD/MOD, I&T EXEMPT
REMOVE -37
-45 MATL .063 2024-T3, QQ-A-250/4, FIN 76



RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCO 1244

REASON FOR EO: STRAP RELOCATED BECAUSE OF INTERFERENCE WITH NUT PLATES REQUIRES NEW PART

DESCRIPTION OF EO: ADDED -45 REMOVED -37

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-37

				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	WT			~	JFH	CH	DAM
DATE	5/24/67			~	5-25-67	5-24-67	5-31-67
1	VDI	SUPPORT	RELIAB. GROUP				

PRIORITY: C
DRAWING TITLE: SKIN - D.S. - 1/4 UPPER DECK REINFORCEMENT - INBOARD
DRAWING NO.: LDW280-18300
EO NO.: A5

ISSUED BY E.J COMISKEY / MTES / L510 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18300
EO NO. A6
CONTROL INFO NO. LM-5-13303

THIS IS A REVISION OF E.O. A5

FOR -45, FINISH #88 WAS FINISH #76

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	LCD 1244

REASON FOR EO: EMMISSIVITY REQUIREMENT

DESCRIPTION OF EO: REF. E.O. A5. FOR -45, FIN. #88 WAS #76

GAEC EO RELEASE: 5 C J/C 31

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	WT			—	MBS	CH	DAME	
DATE	5/26/67			—	5/26/67	5-26-67	5-31-67	5/26/67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN D/S UPR. DECK REINFORCEMENT INBD.	LDW280-18300	A6

ISSUED BY F. STEINMETZ X6510 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

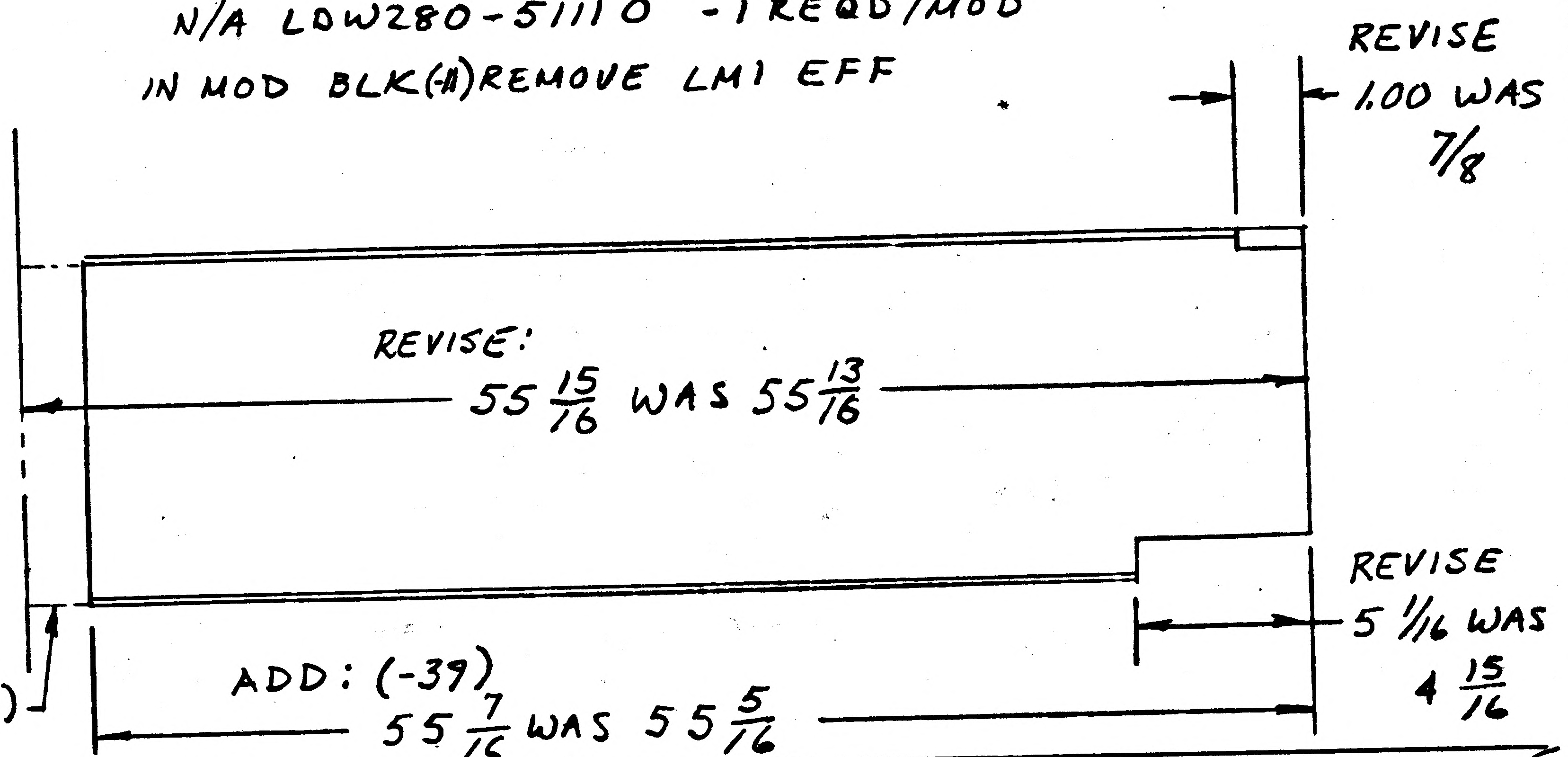
RELEASED BY LIAISON

ENG 32.1 REV

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18300
EO NO. A3
CONTROL INFO NO. LM 5-13320

CREATE -39 (IDENT. TO -11 EXCEPT AS SHOWN
N/A LDW280-51110 -1 REQD/MOD
IN MOD BLK (A) REMOVE LM1 EFF



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD-1244

5

REASON FOR EO: DETAIL PART TOO SHORT DUE TO INCORRECT DIM.

DESCRIPTION OF EO: IN F/D, BM & MOD BLK ADDED -39, REMOVED -11

GAEC EO RELEASE: JK C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	
✓			-11	

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
JaP					JFJ	JFJ	DAM	
DATE	7/6/67				5-4-67	5-4-67	5-8-67	5/4/67
5	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN D/S- -Y UPPER DECK-REINF.	LDW280-18300	A3

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

LDW280-18301 A

LEM

LFM420-2370-003			
LDW420-2370	LDW420-2386	SER# 1	1
LM	LDW280-54521	LM-15(45)	1
	THRU		
	LDW280-54521	LM-4(34)	1
LM	LDW280-53521	LM-3(33)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18301-35		GAEC SCH NO.	

LM	LDW280P51105	LM-2(32)	1
LM	LDW280-51110	LM-1(31)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18301-33		GAEC SCH NO.	

LM	LDW280-51110	LM-1(31)	1EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18301-11,-13,-15 -17,-19,-21,-23,-25,-27-29,31		GAEC SCH NO. 52	

WORK PACKAGE FUNCTION NO 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED C-C

LAST DASH NO. USED -35

GRUMMAN REL INFO "A"

PRIM NO. 207

JK(001)

ME-3A-12/18/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE ✓

CLASS I ENGRG CHANGE

LCD19-1244

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	K. BEACH	~~RELIABILITY~~	
LAYOUT BY	K. BEACH		
CHECKED BY			
GR LEADER	4/27/67		
VDI	4/27		
STRUCTURES	4/27/67	PROJ ENGR	4/27/67
STRUCTURES	4/4	REL GROUP	4/28/67
~~WEIGHTS~~			

© GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN - DESCENT STAGE
- Y DECK REINFORCEMENT
- MID -

SIZE B

CODE IDENT NO. 26512

LDW280-18301 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

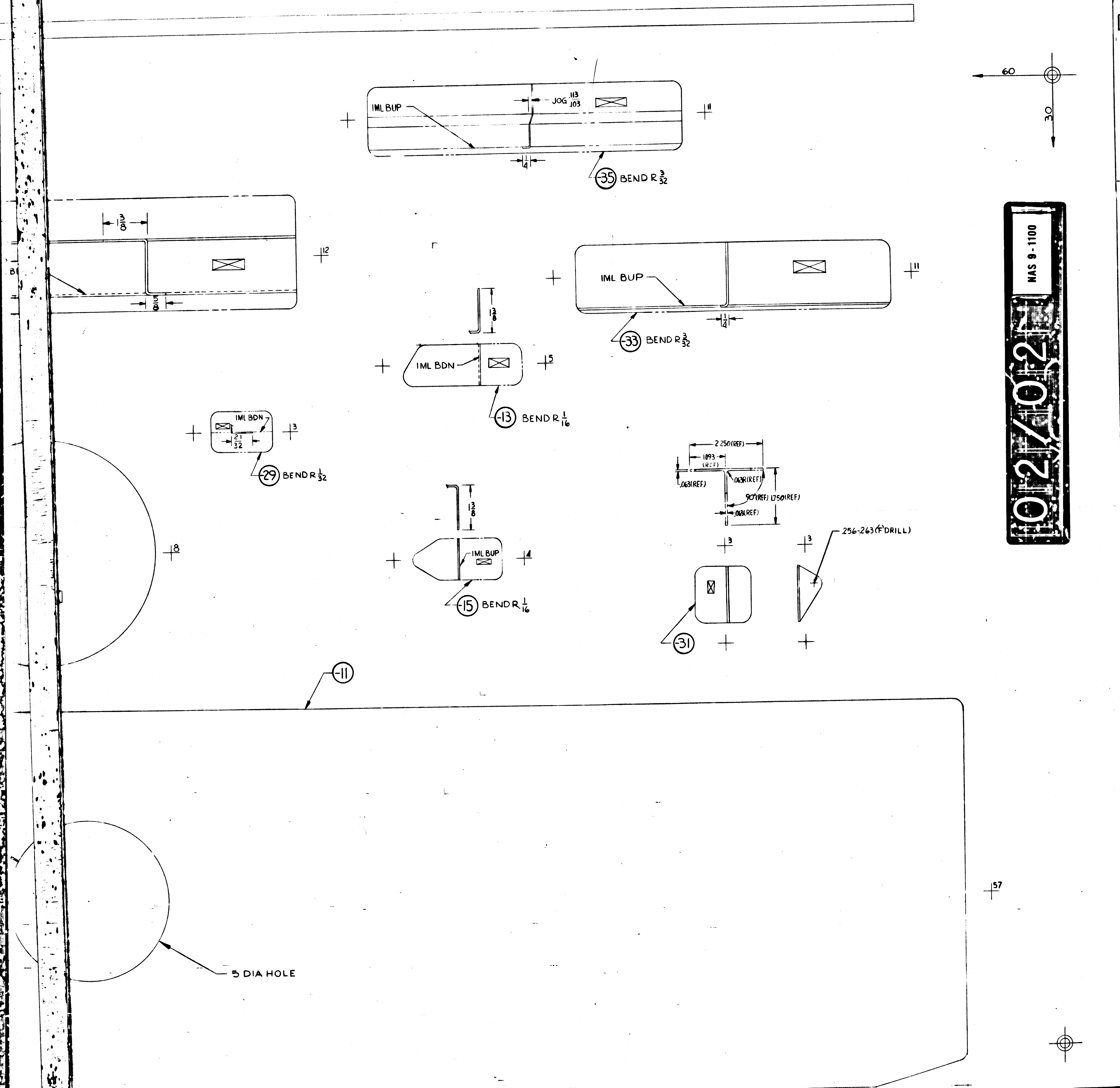
01

NAS 9-1100

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

DWG SIZE 40X64
PRINTING INFO ONLY
FULL SIZE SHEET AREA (42 X 74) = 22 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 5.5 SQ FT
PRINT TRIM LINE



60
30
IML BUP
JOG .113 .103
1/4
-35 BEND R 3/32
11
1 3/8
5/8
12
IML BUP
-33 BEND R 3/32
11
1 3/8
IML BDN
-13 BEND R 1/16
5
IML BDN
21/32
-29 BEND R 1/32
3
2.250(REF)
1.893 (REF)
.063(REF)
.063R(REF)
90°(REF) 1.750(REF)
.063R(REF)
256-263(F DRILL)
3
3
8
1 3/8
IML BUP
4
-15 BEND R 1/16
-31
-11
57
5 DIA HOLE
NAS 9-1100
02/02

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE K	CODE IDENT NO. 26512	LDW280-18301	A
SCALE FULL		SHEET 300	

30-18301 SHEET 3
FRAME 1 FRAME 2
4 3 2 FOR PHOTO REPRODUCTION 1 FR 2 K2
SUPERSEDES LDW280-18301 N.C 4-28-67

A LDW280-18301 A B LDW280-18301 A C D

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

RETRACED SH.300NC-LAST REV.NC-LOFTED DWG WAS DIMENSIONED-SH SIZE K WAS J- CARANO 12-12-68

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	300, 100,200	2B 4C				✓	EOA1 LCD1244	IN M/B, B/M&FLD.ADDED-29&-31(1EA) N/A LDW280-51110 EFF LM-1 ADDED SH. 1.10	LM-1(31)	NOT	REQD	S.CARANO 12-12-68		
	2	300, 1.00,200	2C				✓	EOA2 LCD1244	ADDED-33						
	3	1.00				✓		EOA3 LCD1244	IN M/B FOR-33 ADD N/A LDW280P51105 EFF LM-2(32)	LM-2(32)					
	4	1.00		P LFM420-2370-003		✓		EOA4 LCD1244 CCA667	ON-33(1REQD/MOD) ADDED N/A LDW280-53521 EFF LM-3(33) N/A LDW280-54521 EFF LM-4(34) THRU LM-15(45) & LDW420-2370 SER#1	LM-3(33) THRU LM-15 SER#1					
	5	300, 1.00,200				✓		EOA5 LCD1244	REF EOA4: REMOVED-33 ADDED-35	LM-3(33) THRU LM-15(45)		-33			
	6	1.00		LFM420-2370-003		✓		LEO280-826 LCD1244	ON-33 ADDED LFM420-2370-003, LDW420-2370 EFF. ON LDW280-54520-11, LDW280-54521-13, LDW280-54522-15, LDW280-54523-11, LDW280-51560-9 ADDED NEXT ASSY. LDW420-2386.	SER#1	NOT	REQD			
	7	1.00		S LFM420-2370-003		✓		EOA7 LCD1244 CCA667 (P)	REMOVED-33(1REQD) ADDED-35(1REQD.)			-33	E.C.G.		

CHG APPROVED										
LTR	GROUP LDR	V.D.I	STRUCT	STRUCT						
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18301	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18301-35	E	SPLICE PLATE	AL ALLOY SH	QQ-A-250/12	7075-O	.040 x 3 x 11	T6	88	
		-33		SPLICE PLATE		QQ-A-250/4	2024-O	.063 x 3 x 11	T4		
		-31		CLIP		QQ-A-200/11	7075-T6511	DIE*33481 x 2	NONE		
		-29		CLIP		QQ-A-250/4	2024	.032 x 2 x 3	T3		
		-27		SHIM		QQ-A-250/12	7075-T6	.250 x 1 1/4 x 56 1/4	NONE		
		-25		ZEE		QQ-A-250/4	2024	.071 x 4 1/2 x 11 1/2	T3		
		-23		DOUBLER				.071 x 4 3/4 x 6			
		-21		DOUBLER				.190 x 11 x 13			
		-19		PLATE				.071 x 7 3/4 x 7 3/4			
		-17		CHANNEL				.050 x 2 3/4 x 5 1/4			
		-15		ANGLE				.050 x 2 1/4 x 3 3/4			
		-13		ANGLE				.050 x 2 1/4 x 4 3/4			
		LDW280-18301-11	E	SKIN	AL ALLOY SH	QQ-A-250/4	2024	.071 x 13 x 56 1/4	T3	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T3	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP-14-9030
T4	AL HEAT TREAT	MIL-H-6088
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

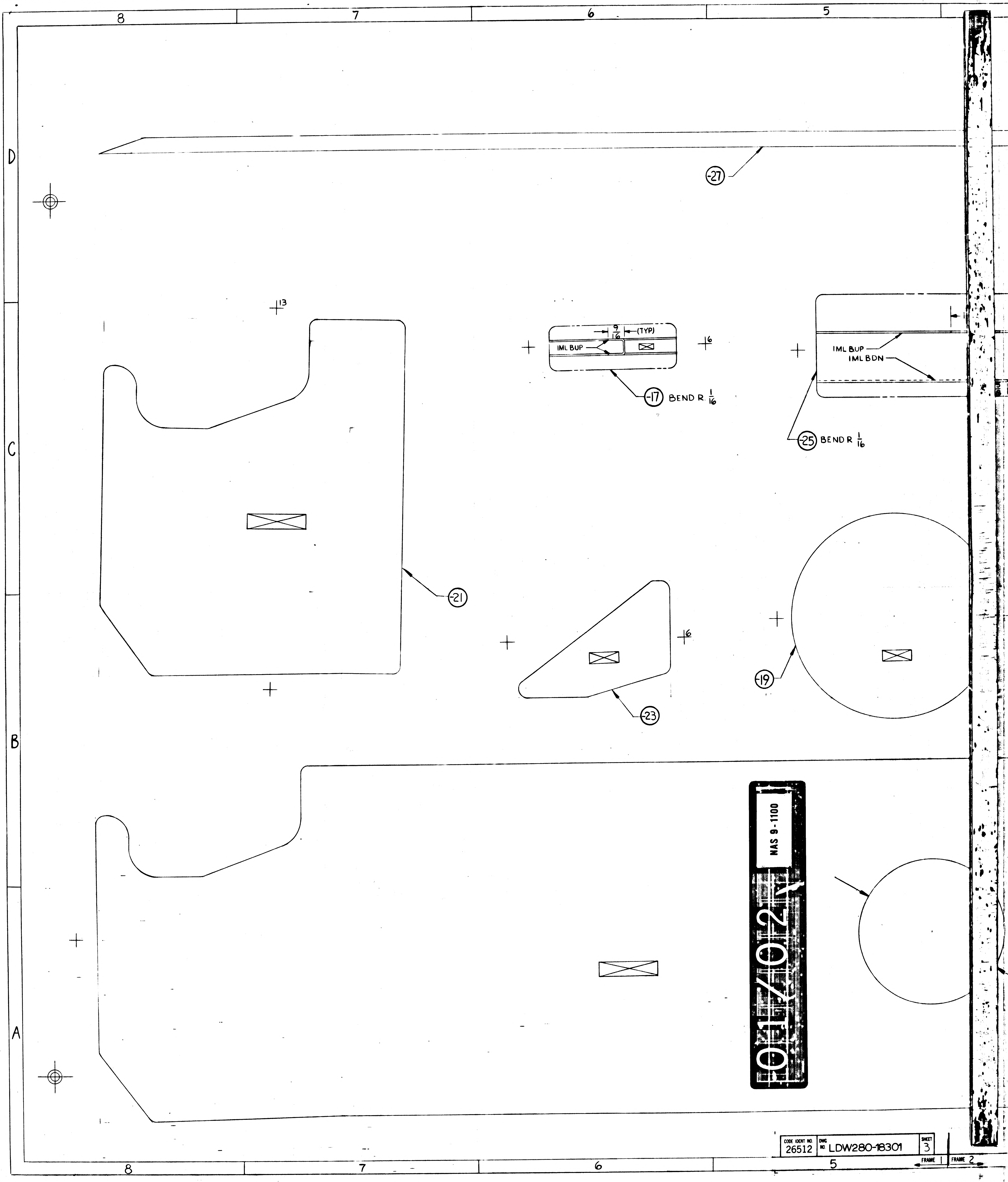
SIZE	CODE IDENT NO.		
B	26512	LDW280-18301	A

SCALE NONE SHEET 200 (A)

ENG 77.2 7-65

01

NAS 9-1100


8
7
6
5
D
C
B
A
-27
13
9/16
(TYP)
IML BUP
16
-17 BEND R. 1/16
IML BUP
IML BDN
-25 BEND R 1/16
-21
16
-23
-19

01/02 NAS 9-1100

CODE IDENT NO 26512 DWG NO LDW280-18301 SHEET 3

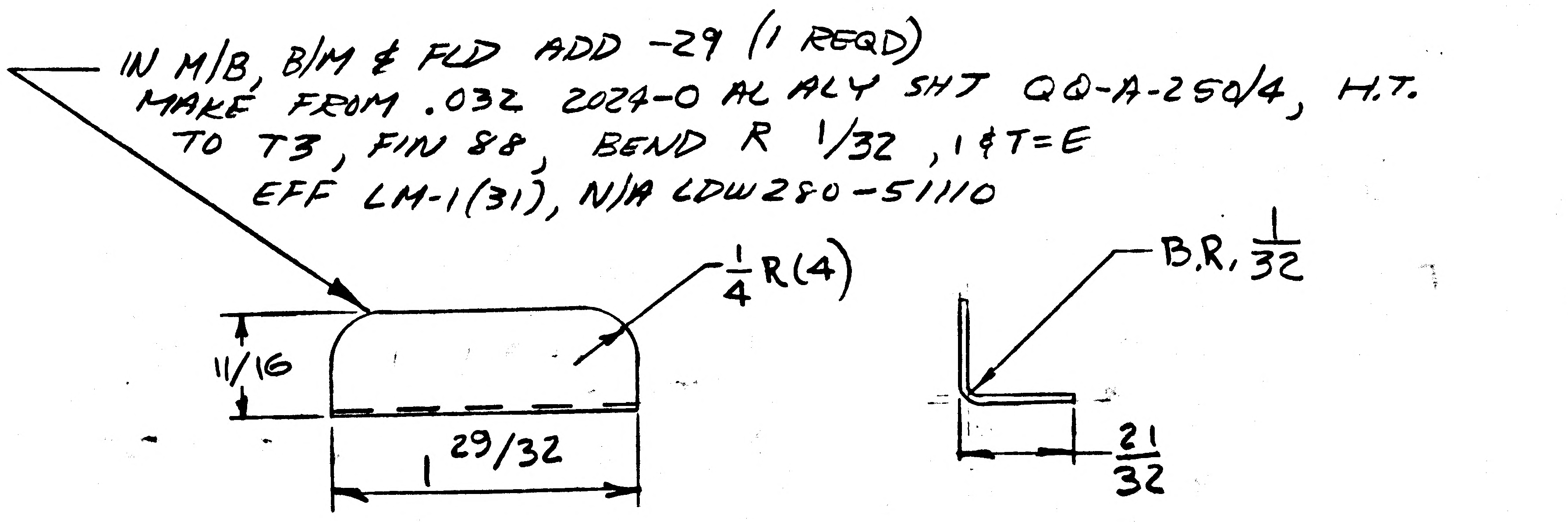
FRAME 1 FRAME 2

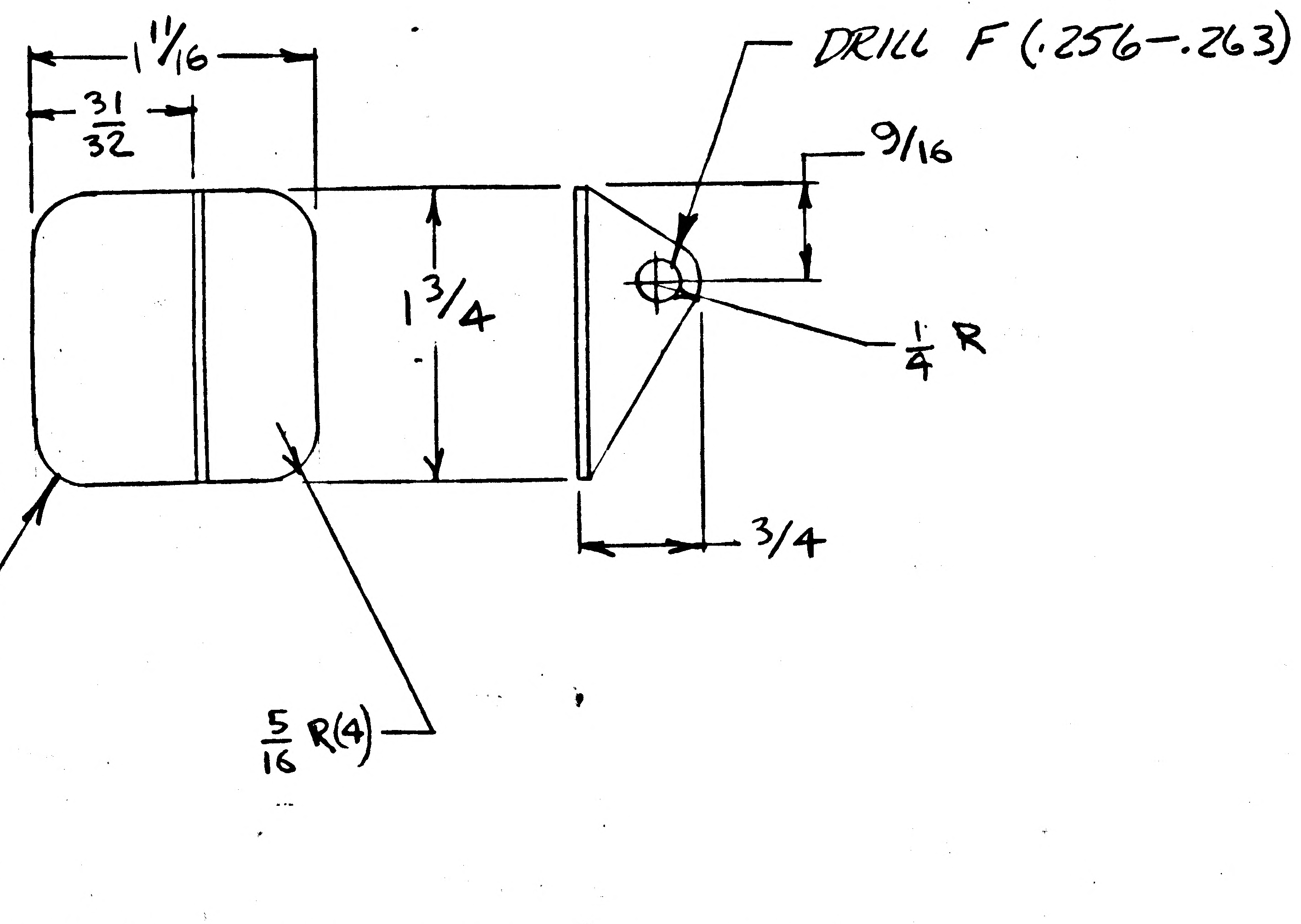
ENG 32.2 REV 3-66 **FITH**

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18301 | EO NO. A1
CONTROL INFO NO. LDW280A-6673

IN M/B, B/M & FLD ADD -29 (1 REQD)
MAKE FROM .032 2024-O AL ALY SHT QQ-A-250/4, H.T. TO T3, FIN 88, BEND R 1/32, 1 & T=E
EFF LM-1(31), N/A LDW280-51110





IN M/B, B/M & FLD ADD -31 (1 REQD)
N/A LDW 280-51110 EFF LM-1(31)
MAKE FROM AL ALLOY EXTR
DIE # 33481 -7075 T6511
H.T.-NONE FINISH #88 1 & T=E

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 19-1244				5
REASON FOR EO SEPARATION MONITOR & TRANSDUCER SPT (FITH)						DESCRIPTION OF EO IN M/B, B/M & FLD ADDED -29 & -31 (1EA) N/A LDW280-51110 EFF LM-1(31)				® GAEC EO RELEASE C JK 5/1/67
MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY				
LM		LM-1 (31)		✓ REVISE DWG	NOT REQD	DATE	5/1/67	4-9/67	5/1/67	5/1/67
				RECORD EO	REWORK / SCRAP	5	VDI	GROUP LEADER	STRESS GROUP	PROJ ENGRG
				PRIORITY C	DRAWING TITLE SKIN - DESCENT STAGE - UPPER DK REINFORCEMENT		SUPPORT RELIAB. GROUP LIAISON ENGRG	DRAWING NO. LDW280-18301		EO NO. A1

ac 5-1-67

ISSUED BY STEA / STRAKOSCH X1156 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

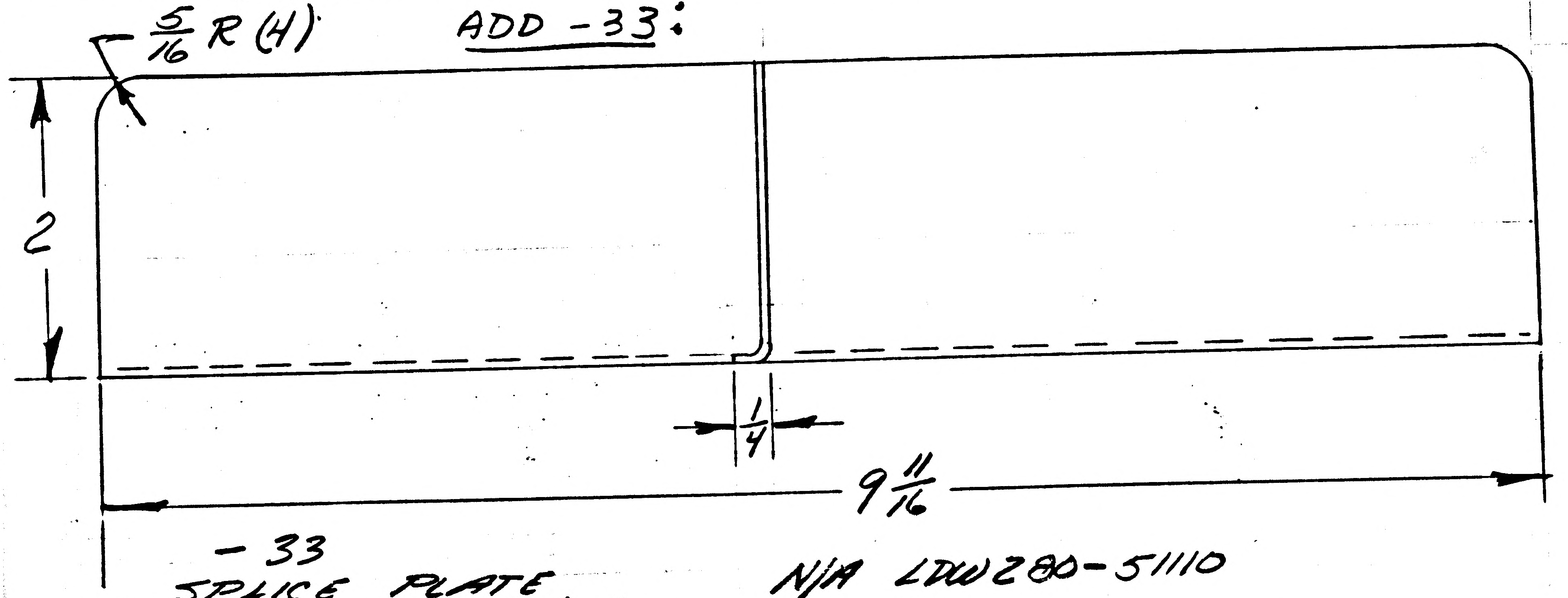
ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18301
EO NO. A2
CONTROL INFO NO. LDW280A6739

ADD -33:



-33
SPLICE PLATE
.063 AL ALY 2024-0
3/32 B.R. H.T. TO T-4
FINISH #88 1REQD/MOD

N/A LDW280-51110

I$T=E

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD-1244

REASON FOR EO: SUPPORT FOR THERMAL SHIELDING -QUAD II

DESCRIPTION OF EO: ADDED -33

GAEC EO RELEASE: JK 5/2/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓		✓	

APPROVED BY								
DATE	5/2/67			5/2/67	5/2/67		5/2/67	5-2-67
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: SK:U DESCENT STAGE -Y DECK REINFORCEMENT -MID

DRAWING NO.: LDW280-18301

EO NO.: A2

ISSUED BY K. BEACH/J. STRAKOSCH X1153 SECTION VD1 GROUP NO. 280 PL 25

01 NAS 9-1100

C

ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING O[illegible]ER

*

DWG. NO. LDW280-18301	EO NO. A3
CONTROL INFO NO. LDW280A7405	

IN M/B FOR-33 ADD N/A LDW280P51105 EFF LM-2(32)
(1 REQD)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD-1244 5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE FOR FITH SHIELD	IN M/B FOR-33 ADD N/A LDW280P51105 EFF LM-2(32)	JK 6/17/7 C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
✓		NOT	REQD	DATE	6/12/67			6/12/67	6/13/67		6/15/67	6/16/67
				5	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ~ D/S ~ -Y UPPER DK REINFORCEMENT ~ MIDDLE	LDW280-18301	A3

ISSUED BY STEA/ STRAKOSCH X1156 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18301	EO NO. A4
CONTROL INFO NO. LDW280A9260	

ON-33 (IREQD/MOD) ADD N/A LDW280-53521 EFF LM-3(33) &
LDW420-2370 SERIAL NO.#1
N/A LDW280-54521 EFF LM-4(34) THRU LM-15(45)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD-1244 CCA667	5

REASON FOR EO: SUPPORT FOR THERMAL SHIELD - QUAD II

DESCRIPTION OF EO: ON-33(IREQD/MOD) ADDED N/A LDW280-53521 EFF LM-3(33) N/A LDW280-54521 EFF LM-4(34) THRU LM-15(45) & LDW420-2370 SERIAL NO.#1

® GAEC EO RELEASE: JK 9/20/7

MODEL	~~PROCURING ACTIVITY NO~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33) THRU LM-15(45)	
	(LEM 420-2370-003)		
-	LDW 420-2370		SER. NO.#1

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP

APPROVED BY									
DATE	9/18/67				9/18/67	9/20/67		9/19/67	9-20-67
P	VDI	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN DESCENT STAGE -Y DECK REINFORCEMENT -MID	LDW280-18301	A4

CDR9-22
ISSUED BY V.A. CHRISTNA / J. STRAKOSCH SECTION VDI X1392 GROUP NO. 335 PL 25

01 NAS 9-1100

A

ENG 32.1 REV 3-65

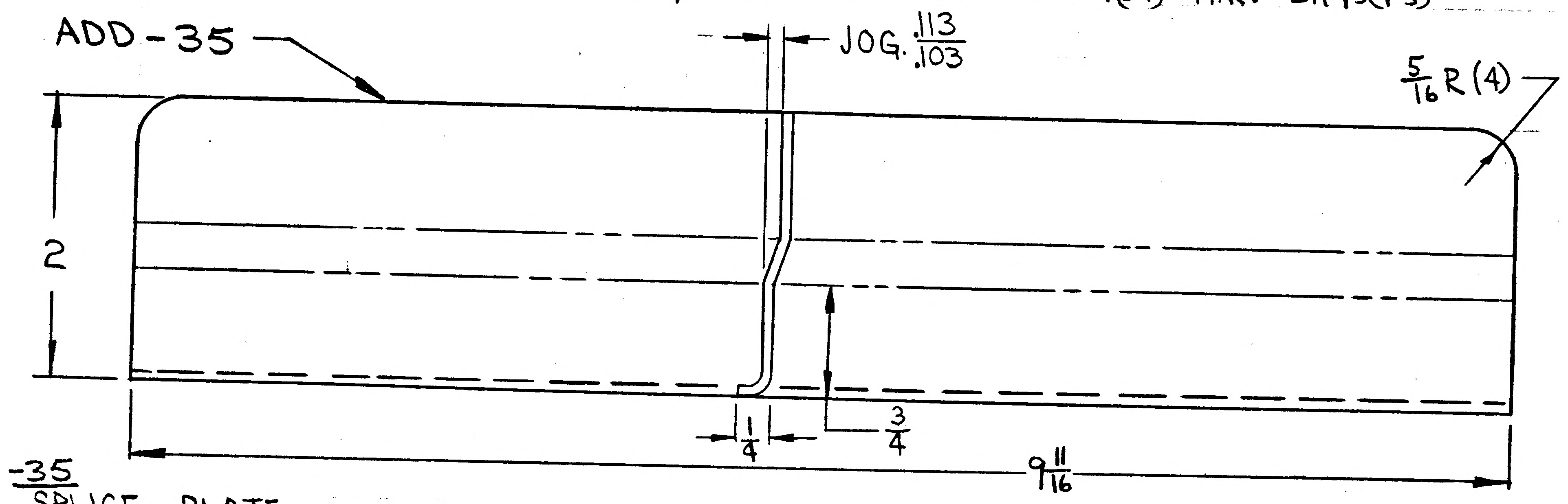
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO. LDW280-18301		EO NO. A5
CONTROL INFO NO. LM5-17296		

THIS IS A REVISION OF E.O. A4

ON E.O. A4 REMOVE -33 (1 REQD/MOD) N/A LDW280-53521 LM-3(33)
N/A LDW 280-54521 LM-4(34) THRU LM-15(45)



-35
SPLICE PLATE
.040 AL ALLOY 7075-0
3/32 B.R. H.T. TO T6 QQA-250/12
FINISH #88 I&T=E

N/A LDW280-53521 EFF LM-3(33) (1 REQD/MOD)
N/A LDW 280-54521 EFF LM-4(34) THRU LM-15(45) (1 REQD/MOD)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1244

RELEASED BY LIAISON (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
SUPPORT FOR THERMAL SHIELD QUAD II	REF EO. A4 REMOVED -33 ADDED -35	JM

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU LM 15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	REWORK	✓ -33 SCRAP

APPROVED BY				—				
DATE	12/2/67			—	11/16/67	11-16-67	12/4/67	11-17-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN DESCENT STAGE -Y DECK REINFORCEMENT - MID	LDW280-18301	A5

ISSUED BY RAGAS-1156 LIAISON SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 826
CONTROL INFO NO. LDW280B0881	

ENG 32.2 REV 3-65

FOR THE FOLLOWING DWGS, ADD LFM420-2370-003, LDW420-2370 SER #1 EFF ; AND ADD N/A LDW420-2386

DWG NO. *	DASH NOS.	NO. REQD	NEXT ASSY	CHANGE NO.	TITLE
LDW280-54520	-11	1	LDW420-2386	A7	SEE DWG
LDW280-54521	-13	1	LDW420-2386	A10	
LDW280-54522	-15	1	LDW420-2386	B2	
LDW280-54523	-11	1	LDW420-2386	A6	
LDW280-51560	-9	1	LDW420-2386	C3	

FOR THE FOLLOWING DWGS, ADD LFM420-2370-003, LDW420-2370 SER #1 EFF. QTY AND NEXT ASSY REMAIN THE SAME.

DWG NO. *	DASH NOS.	CHANGE NO.	TITLE
LDW280-17120	-25	D3	SEE DWG
-17121	-37	D6	
-17122	-29-33	E10	
-17123	-23	C9	
-17228	-11-12-13-14-15-16-17-18	A6	
-17229	-11-12-13-14-15-16-17-18	A6	
-17230	-11-19-21-23	C9	
-17233	-29-30-31-32-33-34-35-36-37-38	D4	
-17234	-13-14-17-19-21-23	B4	
-17310	-11-13-14-15-17-19	B4	
-17330	-31-32-33-34-35-36-37-38	D5	
-17431	-15-17-19	B6	
-17437	-13-14-15-16-17-18	A7	
-17438	-11-13-15	A4	
-17440	-11-13-15	B4	
-17604	-15-17	A5	
-17605	-15-17	B6	
-17606	-23-25	A10	
-17841	-13-19-21-23	B5	
-17842	-11-12-13-14	A6	
-17843	-13-15	A4	
-17845	-11-13-15	A4	
-17846	-11-12-13-14-15-16-17-18-19	B6	
-17850	-17-19-21	B4	
-17981	-11-15	B6	
-18111	-15	A6	
-18301	-33	A5	
LDW280P17497	-9		

FITH

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓

LCD 12YY

30 (5)

REASON FOR EO: F.I.T.H. TEST

DESCRIPTION OF EO: ON *, ADDED LFM420-2370-003, LDW420-2370 EFF. ON LDW280-54520-11, LDW280-54521-13, ON LDW280-54522-15, LDW280-54523-11, LDW280-51560-9 ADDED NEXT ASSY LDW420-2386

GAEC EO RELEASE: JK 1/4/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM420	-2370-003	
LM	LDW420	-2370	SER #1

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQD

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
				PGF 12/27/67	WJH 1/2/68		J.P. 12/29/67	Botti 1-4-68
DATE 12/29/67	VDI							

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO280

EO NO.: 826

GROUP NO. 335 PL 25

SECTION VDI

01-05-67
ISSUED BY Roessler / THORJUSEN X1153

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1436
CONTROL INFO NO. LDW280B7426

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18272	B1	SEE DWG
-18273	B1	
-18281	A4	
-18283	B1	
-18286	B2	
-18290	B1	
-18301	B1	
-18312	B4	
LDW280 -18313	B2	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑ LCD3587 PKG 54 PG 243, ECP U069, CCA1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: SAB 5-1-69; 5/6/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/8/69			4-2-69	4/8/69		4/9/69	5-5-69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1436

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1668
CONTROL INFO NO. LDW280B7664		

REMOVE LM-10(40) THRU LM-14(44) EFFECTIVITY FROM ALL DASH NOS.* FOR THE NOTED N/A *-*.

DWG. NO.*	N/A *-*	DWG. TITLE	CHG. NO.
LDW280-17438	LDW280-54521	SEE DWG.	B2
-17440	-54520		C2
-17841	-54520		B3
-17843	-54522		B2
-17844	-54522		A5
-17845	-54522		A6
-17846	-54522		A6
-17850	-54520		C4
	-54521		
	ok -54522		
-18301	-54521		B2
LDW280-18398	LDW280-54522	SEE DWG.	A5

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3890	PKGS 50, 51, 52	
REASON FOR EO: REDESIGN OF UPPER DECKS FOR EXTENDED PROP. TANKS		DESCRIPTION OF EO: FOR(*) REMOVED LM-10(40) THRU LM-14(44) EFF. FOR N/A *-*			(5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓
PRIORITY: C
DRAWING TITLE: NOTED

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
APPROVED BY								
DATE	9/16/69			9/16/69	9/16/69		9/16/69	9/17/69

OK 9/17/69

DRAWING NO. LEO 280
EO NO. 1668

9-10-69
ISSUED BY L. KRAVITZ/THORJUSEN x87222 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18301

EO NO. B3

CONTROL INFO NO. LM5-23323

ADD LDW280-60521 AS N/A FOR
-35, ① REQ'D/MOD

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCD 3994 PKG 5

REASON FOR EO: TO AGREE WITH N/A DWG

DESCRIPTION OF EO: ADDED LDW280-60521 AS N/A FOR -35 ①

GAEC EO RELEASE: CM

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	
		LTA3 THRU (4 6c)	
		LM-10 (40) THRU LM-13(43)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
L		NOT REQD		DATE	9/24/70			9/23/70	9/16/70	9-17-70	9/21/70	9-19-70
REVISE DWG	RECORD EO	REWORK	SCRAP	7-6-70	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONF

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN - DESCENT STAGE -Y DECK-REINFORCEMENT - MID	LDW280-18301	B3

ISSUED BY LIAISON J. PAULSEN X86755 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18302

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51110	LM-1(31)	6
PART NO. LDW280-18302-27		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51110	LM-1(31)	1EA
PART NO. LDW280-18302-11,-13,-15,-17,-19,-21,-23,-25		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -25

GRUMMAN REL INFO

PRIM NO. 207

JK(001) n.P.-14- 4/28/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS	DECIMALS	ANGLES
±1/32	±.010	±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT ☐

CLASS II ENGRG CHANGE ✓

CLASS I ENGRG CHANGE ☐

LCD19-1244

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	W. STEA		
LAYOUT BY	W. STEA	Thermo	Townd 4-27
CHECKED BY			
GR LEADER	4/26/67		
VDI	4/26/67		
STRUCTURES	WH 4/27	PROJ ENGR	J. G. McCaughan 4/27/67
STRUCTURES	JEB 4/27	REL GROUP	4-28-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN

DESC. STG - -Y UPPER DECK

REINFORCEMENT - OUTBOARD

SIZE B

CODE IDENT NO. 26512

LDW280-18302

SCALE NONE

SHEET 1. OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18302-27			ANGLE	AL ALLOY SHT	QQ-A-205/4	2024	.063 X 1 3/4 X 10	T3	88	
	-25			ANGLE				.032 X 2 X 2			
	-23			ANGLE				.050 X 2 1/4 X 2 7/8			
	-21			SHIM				.250 X 1 3/4 X 4			
	-19							.063 X 2 X 10 3/8			
	-17							.190 X 1 1/4 X 10 3/8			
	-15			SHIM				.250 X 1 1/4 X 2 5/8			
	-13			DOUBLER				.125 X 9 3/4 X 10			
	LDW280-18302 11			SKIN	AL ALLOY SH.	QQ-A-250/4	2024	.050 X 12 3/4 X 56 1/2	T3	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T3	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18302

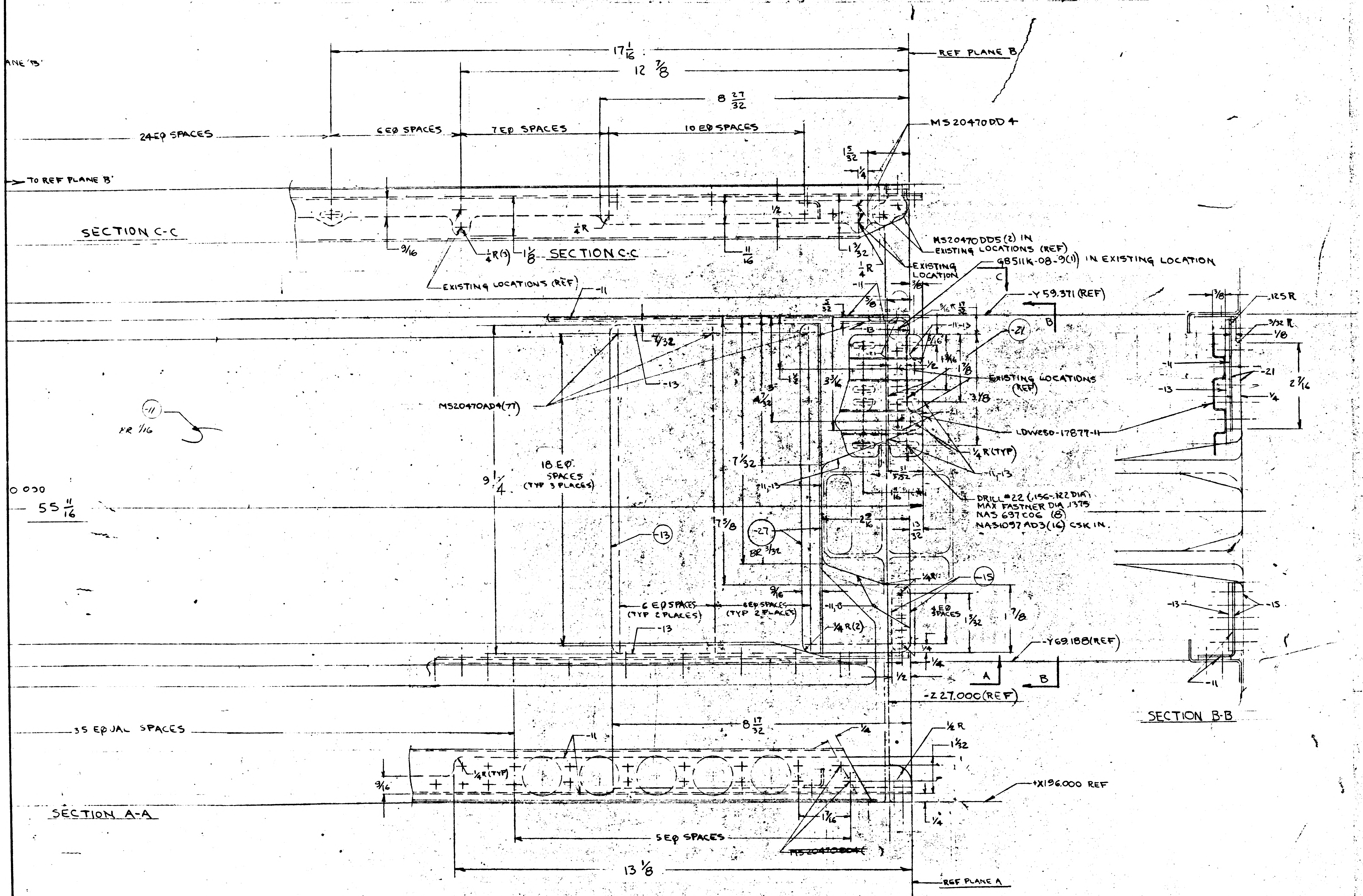
SCALE NONE

SHEET 2.00 OF 3

ENG 77.2 5-64

01

NAS 9-1100


ANE 'B'
17 1/16
12 7/8
REF PLANE B
8 27/32
24 EQ SPACES
6 EQ SPACES
7 EQ SPACES
10 EQ SPACES
MS20470DD4
→ TO REF PLANE B'
SECTION C-C
9/16
1/4 R (3)
1 1/8
SECTION C-C
11/16
MS20470DD5(2) IN EXISTING LOCATIONS (REF)
EXISTING LOCATION
GB511K-08-9(1) IN EXISTING LOCATION
EXISTING LOCATIONS (REF)
-11
-Y59.371 (REF)
B
C
-21
-13
MS20470AD4(77)
EXISTING LOCATIONS (REF)
3 1/8
LDW280-17877-11
1/4 R (TYP)
-11-13
FR 1/16
18 EQ. SPACES (TYP 3 PLACES)
9 1/4
DRILL #22 (.156-.122 DIA) MAX FASTNER DIA .1375 NAS 697C06 (8) NAS1097AD3(16) CSK IN.
55 11/16
0 030
-27
-13
-15
6 EQ SPACES (TYP 2 PLACES)
6 EQ SPACES (TYP 2 PLACES)
-13
-Y69.188 (REF)
A
B
-Z27.000 (REF)
35 EQUAL SPACES
8 17/32
1/2 R
-11
1/4 R (TYP)
9/16
+X196.000 REF
SECTION A-A
5 EQ SPACES
MS20470AD4
13 1/8
REF PLANE A
1/8
.125 R
3/32 R
2 7/16
-21
-13
-11
SECTION B-B

LDW280-

02/02

NAS 9-1100

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R + .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED.	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/2	√

DWG SIZE 34 X

PRINTING INFO ONLY

NOTES

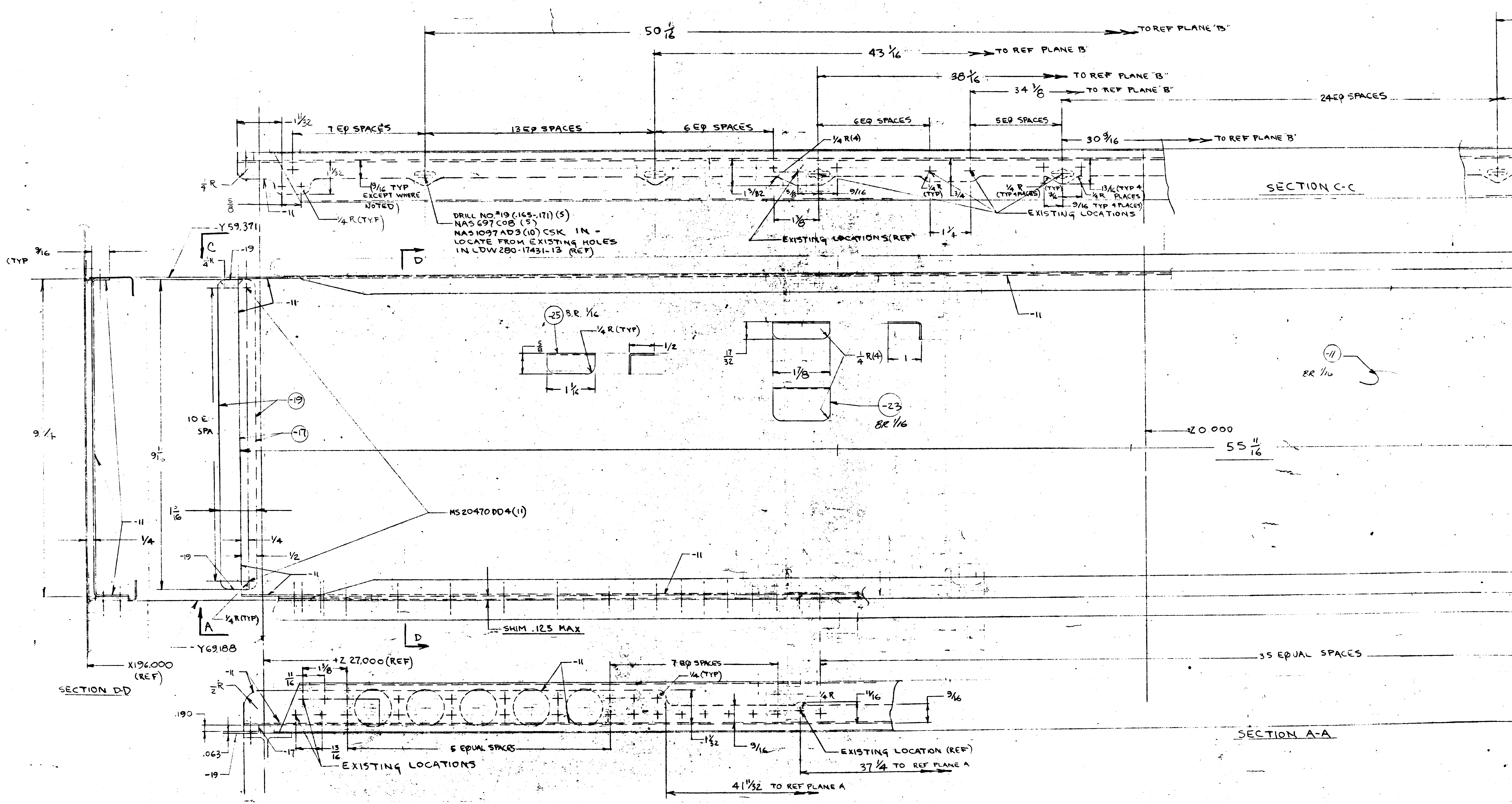
1. NO TOOLING HOLES OR PILOT [illegible] IN PARTS
2. ALL INFO. NOT REQ'D FOR MANUFACTURE OF DETAIL PARTS IS FOR REFERENCE PURPOSES ONLY

LAYOUT RELEASE
MAY BE REDRAWN ON
PRODUCTION FORMAT

FITH

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM-1 (31)	SIZE J	CODE IDENT NO 26512	LDW280-8392	
MODEL OR END ITEM	SCALE FULL			SHEET 3 OF 3

THIS IS AN ORIGINAL DRAWING


50 1/16 TO REF PLANE 'B'
43 1/16 TO REF PLANE B
38 1/16 TO REF PLANE 'B'
34 3/8 TO REF PLANE 'B'
30 9/16 TO REF PLANE 'B'
24 EQ SPACES
7 EQ SPACES
13 EQ SPACES
6 EQ SPACES
6 EQ SPACES
5 EQ SPACES
11/32
1/4 R(4)
1/4 R (TYP)
19/16 TYP EXCEPT WHERE NOTED
DRILL NO. #19 (.165-.171) (5)
NAS 697 C08 (5)
NAS 1097 AD3 (10) CSK IN - LOCATE FROM EXISTING HOLES IN LDW 280-17431-13 (REF)
EXISTING LOCATIONS (REF)
EXISTING LOCATIONS
1/4 R (TYP)
1/8 R (TYP 4 PLACES)
13/16 (TYP 4 PLACES)
9/16 TYP 4 PLACES
1 1/4
1 3/8
1 3/32
9/16
SECTION C-C
-Y59.371
C
D
-19
-11
(TYP 9/16
9 1/4
9 1/2
10 EQ SPA
-19
-17
1 3/16
1/4
1/2
MS20470DD4(11)
(25) B.R. 1/16
1/4 R (TYP)
5/8
1 1/16
1/2
17/32
1 1/8
1/4 R(4)
1
(23) BR 1/16
(11) BR 1/16
Z0.000
55 11/16
SHIM .125 MAX
A
1/4 R(TYP)
-Y69.188
D
X196.000 (REF)
SECTION D-D
+Z 27.000 (REF)
1 3/8
11/16
1/2 R
.190
.063
-19
-17
13/16
5 EQUAL SPACES
EXISTING LOCATIONS
7 EQ SPACES
1/4 (TYP)
1/4 R
11/16
9/16
1 1/32
9/16
EXISTING LOCATION (REF)
37 1/4 TO REF PLANE A
41 11/32 TO REF PLANE A
35 EQUAL SPACES
SECTION A-A

01/02 NAS 9-1100

LDW280-

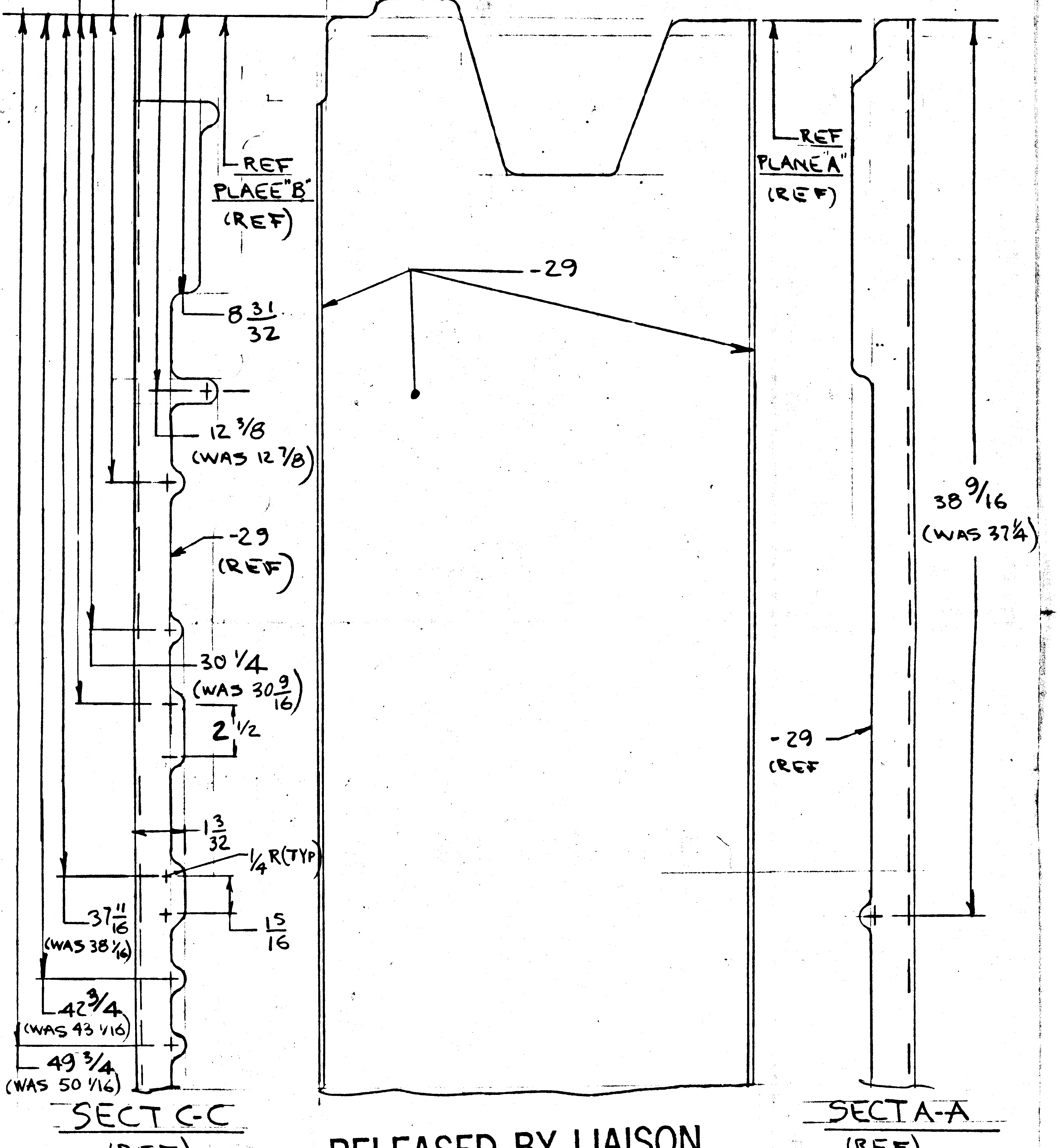
A

ENG 22.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18302	EO NO. A1
CONTROL INFO NO. LM5-13317	

IN H/B, B/M & FLD ADD -29 SAME AS -11 EXCEPT AS SHOWN
N/A - LDW280-51110 - 1 REQD
IN MOD BLK(-1) REMOVE LM1(31) EFF)



33 1/32 (WAS 34 3/8)
16 11/16 (WAS 17 1/8)
REF PLAEE "B" (REF)
8 31/32
12 3/8 (WAS 12 7/8)
-29 (REF)
30 1/4 (WAS 30 9/16)
2 1/2
1 3/32
1/4 R (TYP)
15/16
37 11/16 (WAS 38 1/16)
42 3/4 (WAS 43 1/16)
49 3/4 (WAS 50 1/16)
-29
REF PLANE "A" (REF)
38 9/16 (WAS 37 1/4)
-29 (REF

SECT C-C (REF)

SECT A-A (REF)

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD- -1244	5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INCORRECT LOCATION OF TABS	ADDED -29, REMOVED -11.	JA C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
✓			✓ -11	APPROVED BY	WT			~	WJH	DV	DAM
				DATE	5/2/67			~	5/2/67	5/4/67	5-5-67
				5	VDI						

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D.S. -Y UPPER DK SKIN REINFORCEMENT	LDW280-18302	A1

ISSUED BY STEA/DON RAGAS X6510 OR X1153 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

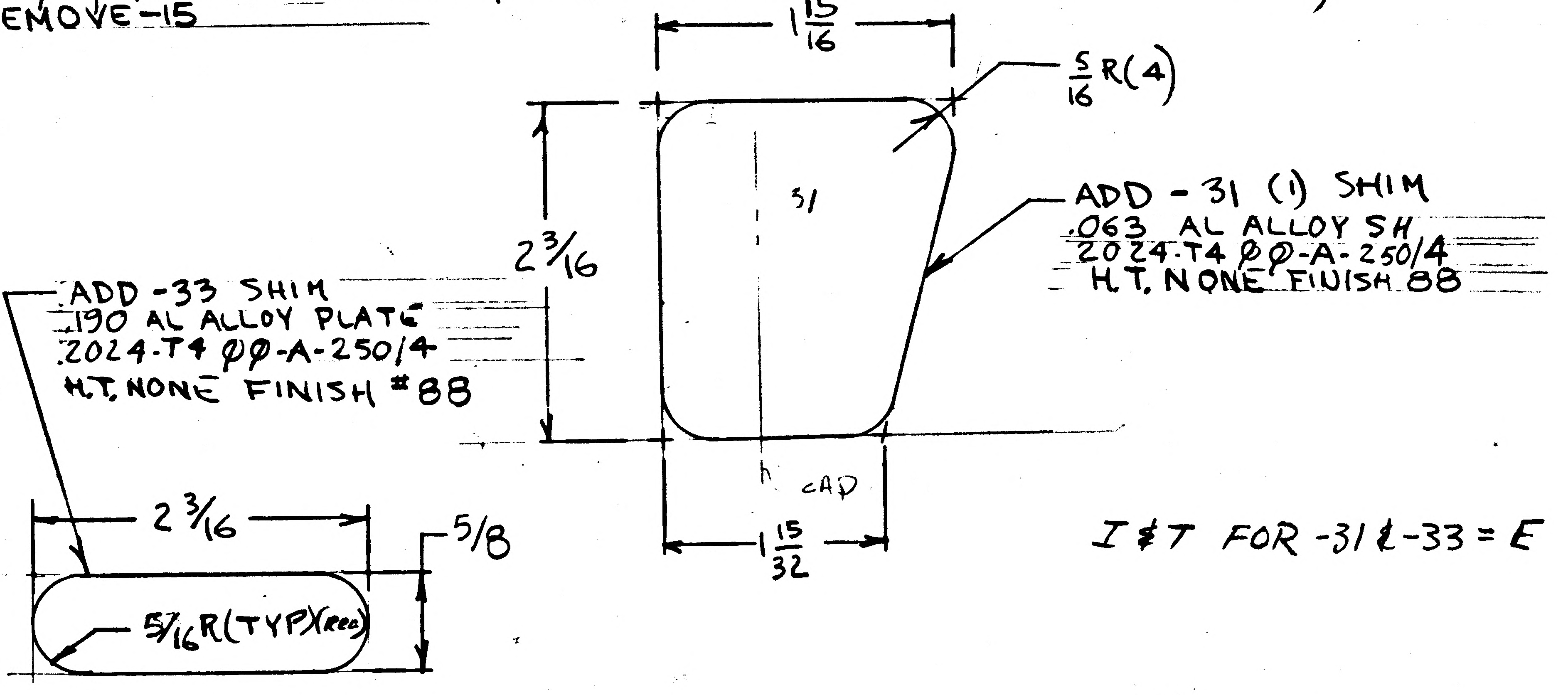
ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18302 | EO NO. A2
CONTROL INFO NO. LDW280A6136

IN M/B B/M & FLD ADD -31 & -33 (1 EA REQD; N/A LDW280-51110 EFF LM-1 (31)
REMOVE -15



1 15/16
5/16 R(4)
51
ADD - 31 (1) SHIM
.063 AL ALLOY SH
2024-T4 QQ-A-250/4
H.T. NONE FINISH 88
2 3/16
ADD -33 SHIM
.190 AL ALLOY PLATE
2024-T4 QQ-A-250/4
H.T. NONE FINISH #88
CAD
1 15/32
2 3/16
5/8
5/16 R(TYP)(REQ)
I & T FOR -31 & -33 = E

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD-1244 5

REASON FOR EO: TO PROVIDE SPT FOR QUAD II FITH SHIELD

DESCRIPTION OF EO: IN M/B, B/M & FLD ADDED -31 & -33 (1 EA REQD N/A LDW280-51110 EFF LM-1(31). REMOVED -15

GAEC EO RELEASE: JK 5/2/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓			✓ -15	APPROVED BY								ac
				DATE	5/2/67			5/2/67	5/2/67		5/2/67	5-2-67
				5	VDI							

PRIORITY: C
DRAWING TITLE: SKIN DESCENT STAGE - UPPER DK REINFORCEMENT
DRAWING NO.: LDW280-18302
EO NO.: A2

ISSUED BY STEA / STRAKOSCH X1156 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18303

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51102	LM-1 (31)	1EA
PART NO. LDW280-18303-11&-13		GAEC SCH NO. 51	

WORK PKG FUNCTION NO. 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL 4 INFO		
LAST DASH NO. USED	-13	PRIM NO.	JK(001)	
		207	MP-10 4/17/7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 -

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE
LCD19-1244.

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	GRIECO/BIANCHINO	VCI	4/17
LAYOUT BY	D. WINK		
CHECKED BY			
GP LEADER	4/17/67		
VEH DES INT			
STRUCTURES	4/17	PROJ ENGR	J. O. McCloughan 4/17/67
STRUCTURES	4/17	REL GROUP	4-17-67
THERMO	4/17/67		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CYLINDER
DESCENT STAGE - ENGINE COMPARTMENT-
STOVE PIPE - FITH

SIZE B
CODE IDENT NO. 26512
LDW280-18303
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

FITH

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18303-13	E	CYLINDER (HALF)	TITANIUM SH	MIL-T-9046 TYPE III, COMP C, COND. ANNEALED	6Al-4V	.017 × 36 × 82	NONE	NONE	
		LDW280-18303-11	E	CYLINDER (HALF)	TITANIUM SH		6Al-4V	.017 × 36 × 82	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18303

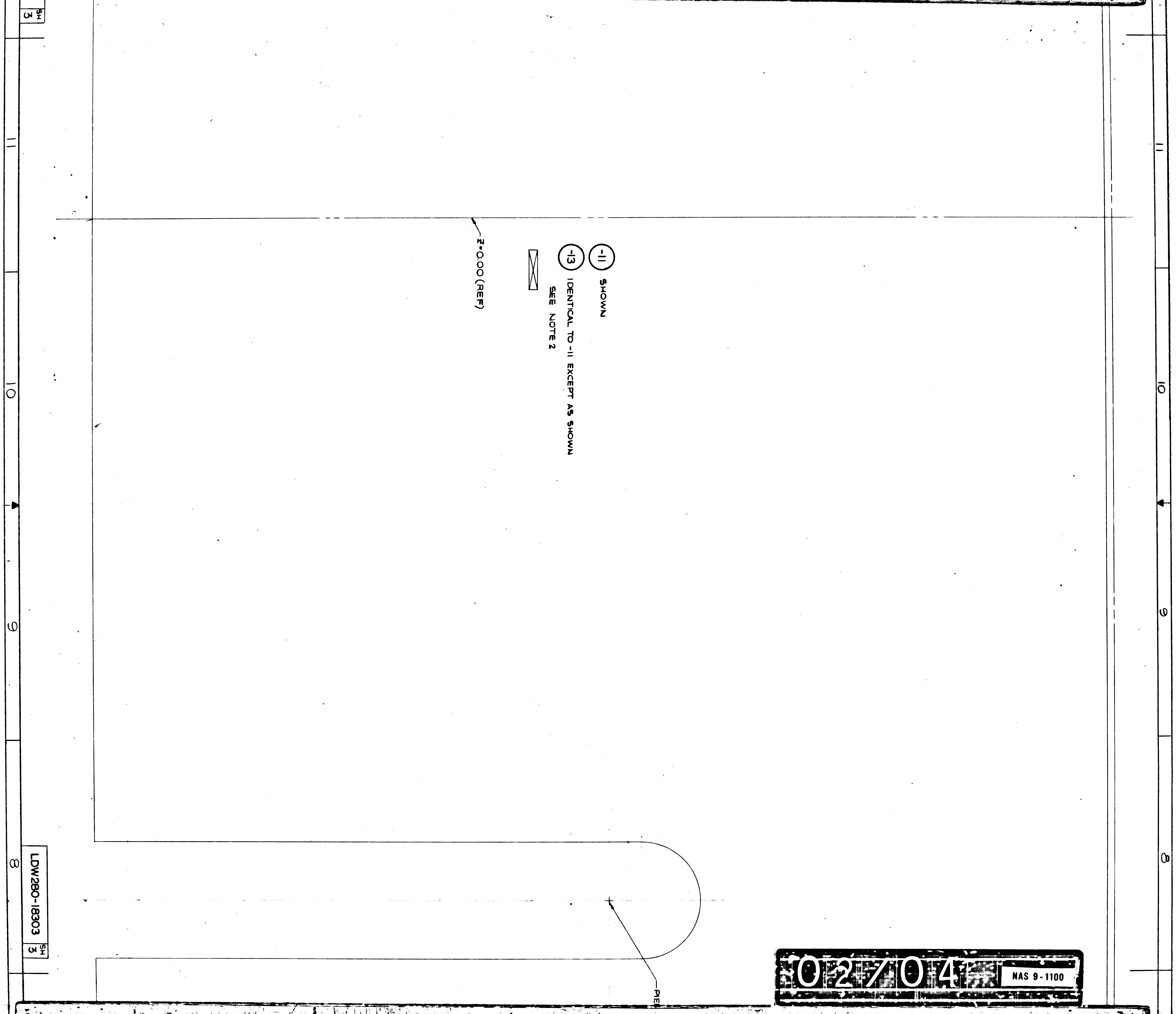
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

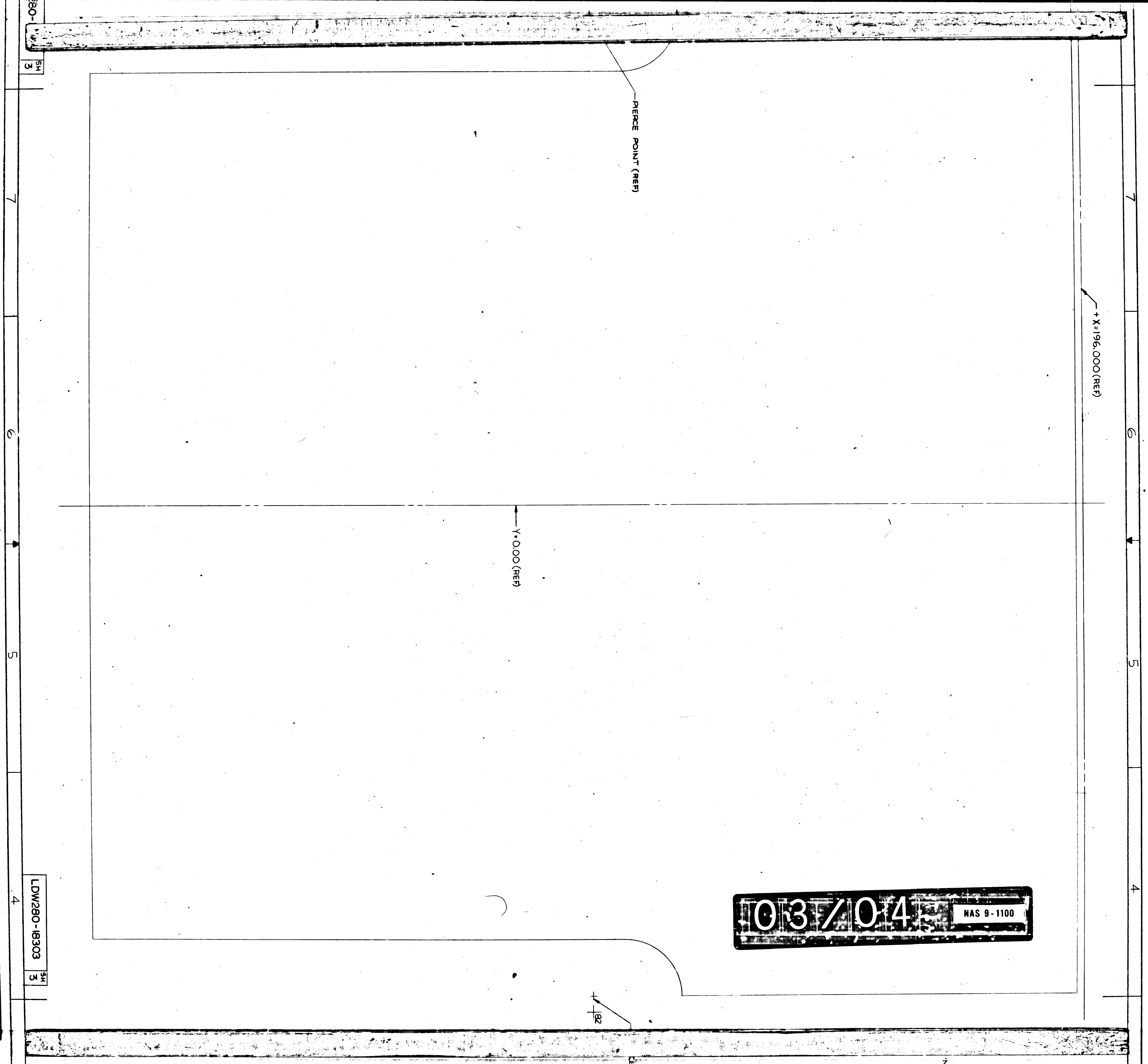
01

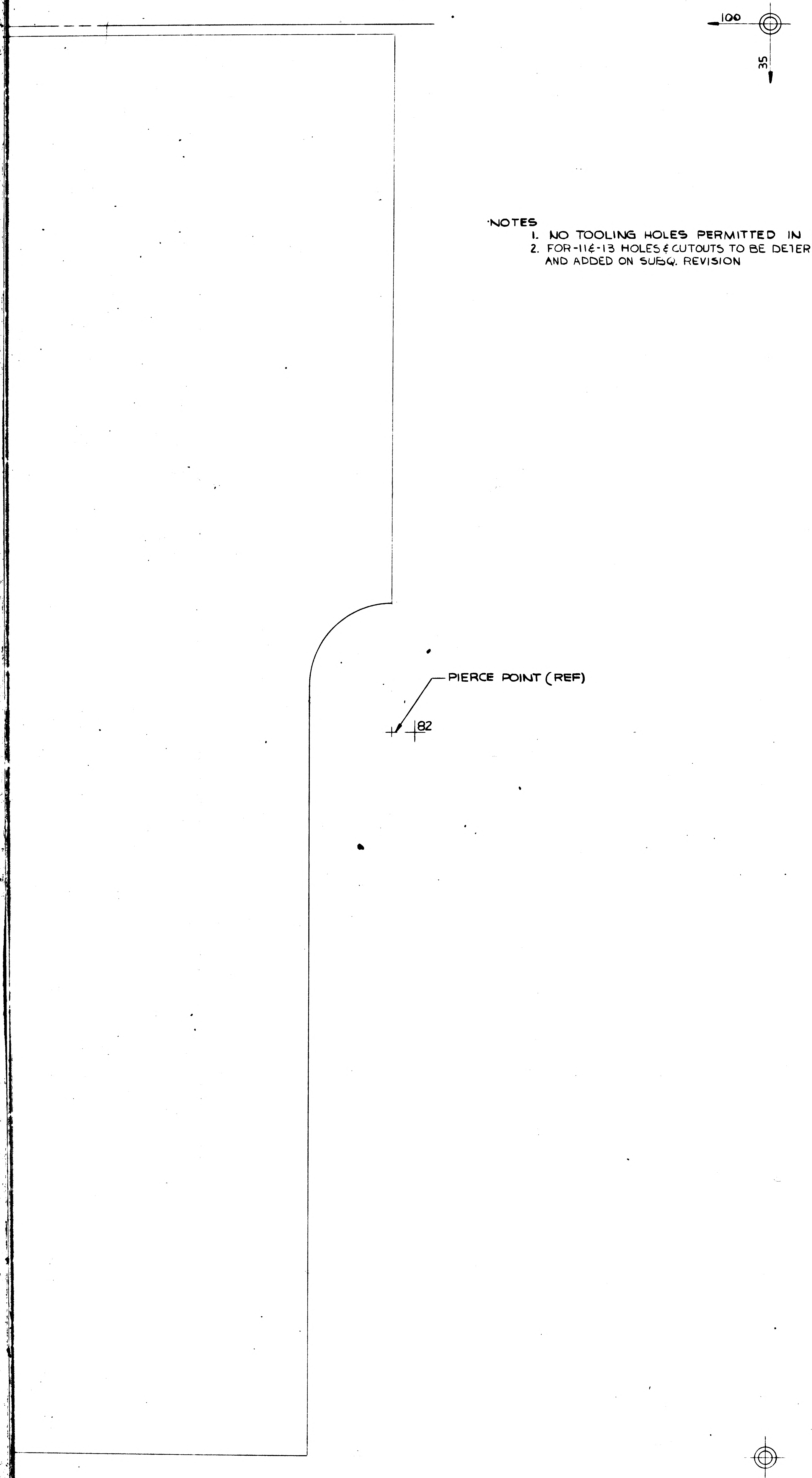
NAS 9-1100



-11 SHOWN
-13 IDENTICAL TO -11 EXCEPT AS SHOWN
SEE NOTE 2
Z-0.00 (REF)
PIE
LDW280-18303
SH 3
11
10
9
8

02704 NAS 9-1100


PIERCE POINT (REF)
+X=196.000(REF)
Y=0.00 (REF)
82
7
6
5
4
SH 3
LDW280-18303
03/04
NAS 9-1100



NOTES
1. NO TOOLING HOLES PERMITTED IN PART.
2. FOR -11 & -13 HOLES & CUTOUTS TO BE DETERMINED AND ADDED ON SUBSQ. REVISION

LDW280-18303 SH 3

04/014 NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 40x 120

PRINTING INFO ONLY

FULL SIZE SHEET AREA (40x 122) = 38.780 SQ. FT.
¼ SIZE SHEET AREA (¼ OF FULL) = 9.695 SQ. FT.

PRINT TRIM LINE

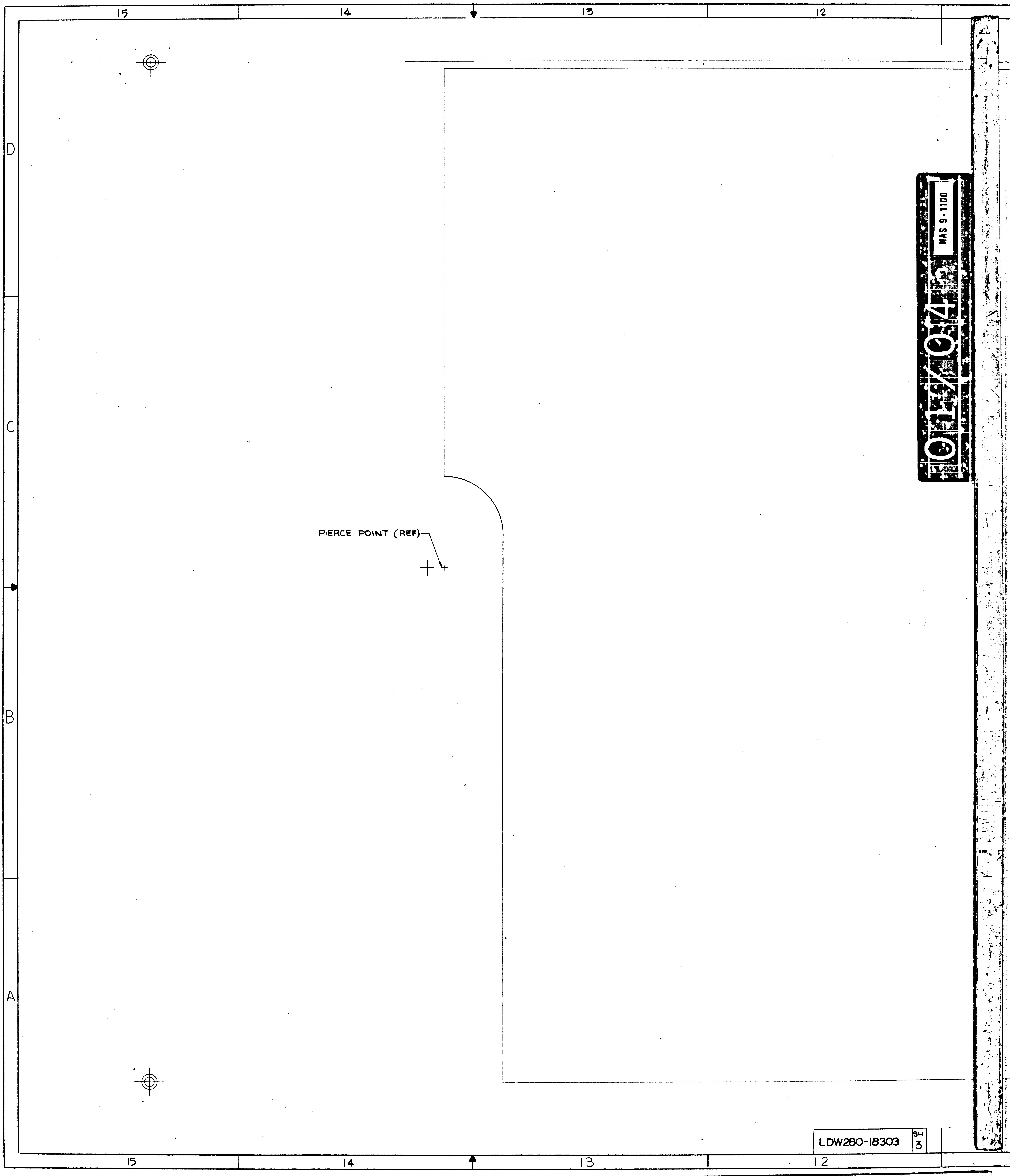
LDW280-18303

LDW280-18303

	GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK		
LM	SIZE K	CODE IDENT NO. 26512	LDW280-18303
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO | REPRODUCTION, 4 FR, K2

ENG 73-8 6-64


15
14
13
12
D
C
B
A
PIERCE POINT (REF)
LDW280-18303
SH
3

01/043 NAS 9-1100

LDW280-18304

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
								LM	LDW280-51102	LM-1 (31)	4
PART NO.		GAEC SCH NO.		PART NO.		GAEC SCH NO.		PART NO. LDW280-18304-11		GAEC SCH NO. 51	

WORK PKG FUNCTION NO. 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH										
SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO. 207 JK(001) MP-10 4/17/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE
LCD19-1244

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY D.PALMER
LAYOUT BY ZUVER
CHECKED BY
GP LEADER 4/17/67
VEH DES INT
STRUCTURES 4/17/67
STRUCTURES 4/17
VDI 4/17
THERMO 4/17/67
PROJ ENGR 4/17/67
REL GROUP 4-17-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DECK
DESCENT STAGE - ENGINE COMPARTMENT
STOVE PIPE - UPPER - FITH

SIZE B
CODE IDENT NO. 26512
LDW280-18304
SCALE NONE
SHEET 1.00 OF 3

FITH

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18304-11	E	DECK	TITANIUM SH	MIL-T-9046, TYPE III, COMP C, COND ANNEALED	6Al-4V	.017 x 28 x 28	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

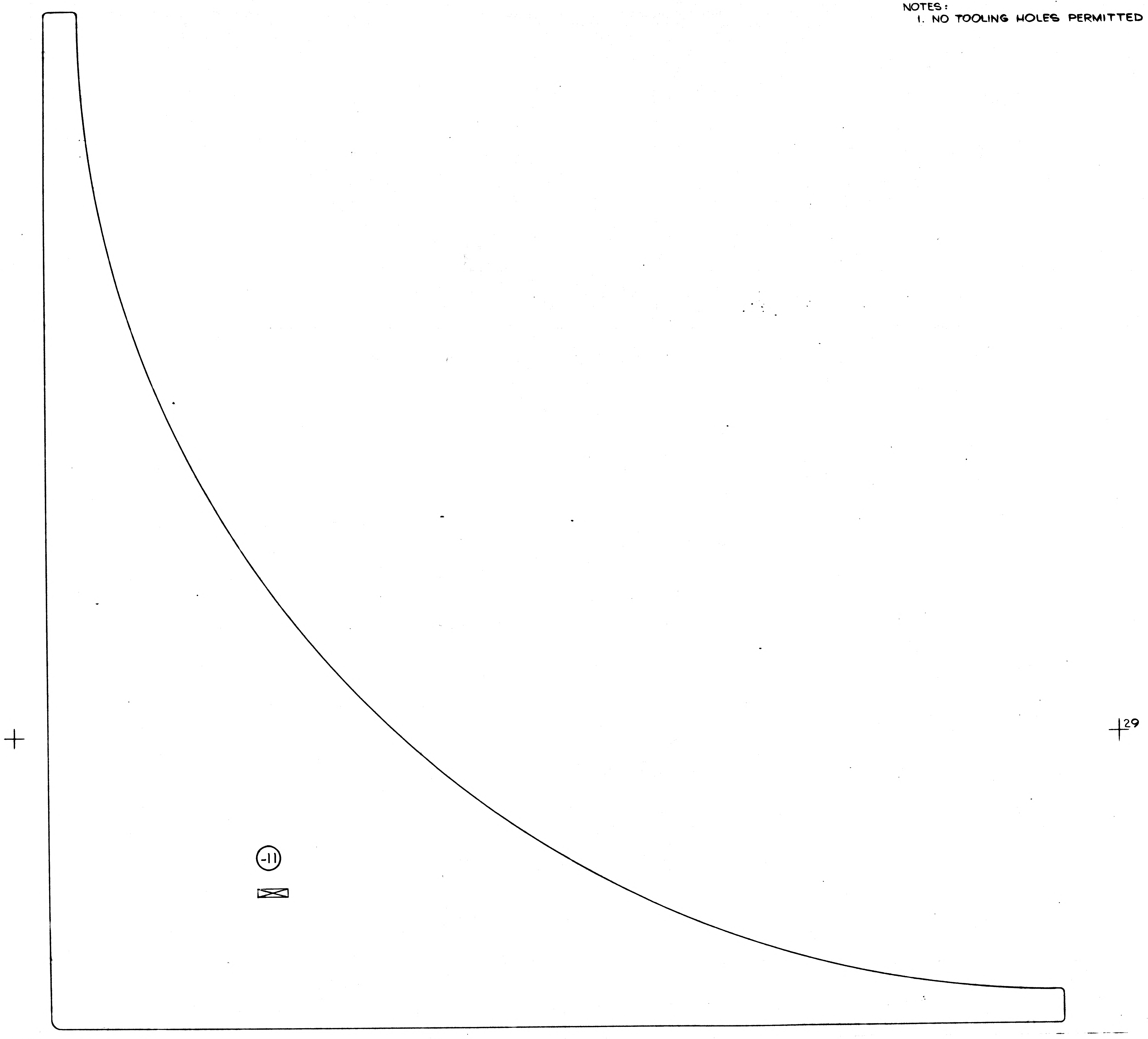
SIZE B
CODE IDENT NO. 26512
LDW280-18304
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
$\sqrt{125}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\sqrt{250}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL $\sqrt{}$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
E	26512	LDW280-18304
SCALE FULL		SHEET 3.00

MODEL OR END ITEM

LDW280-18304

LDW280-18304

01

NAS 9-1100

ENG 32.2 REV 3-65

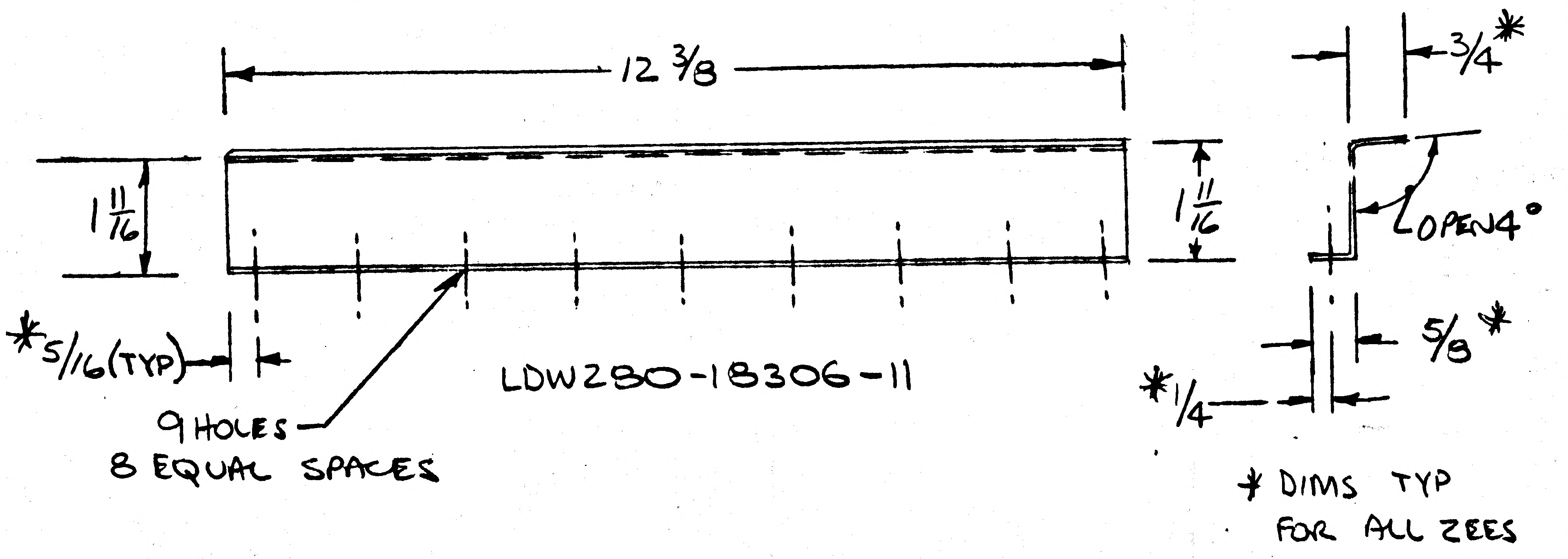
FITH

A

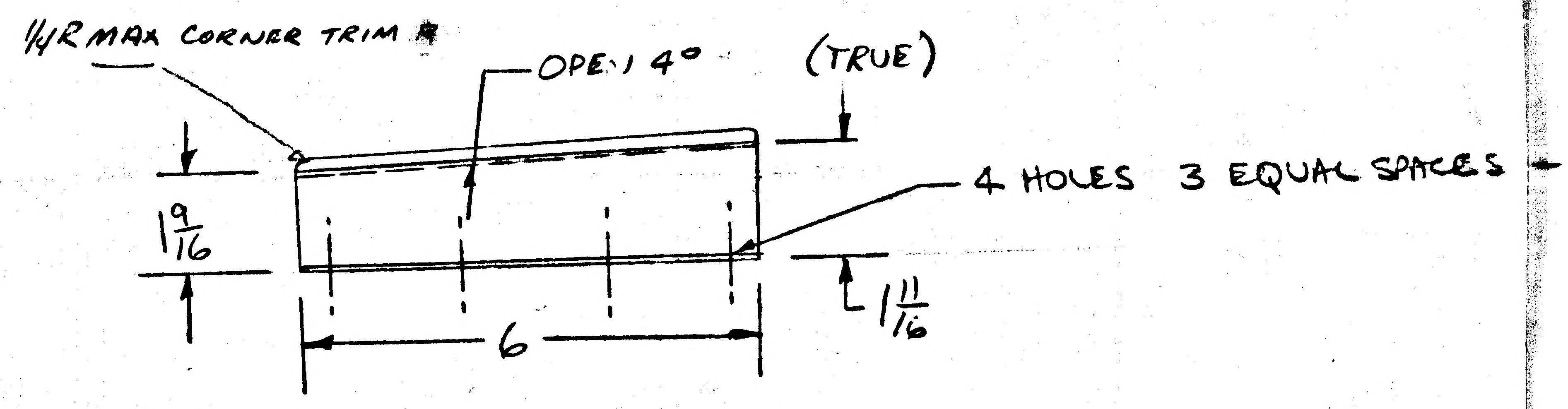
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18306		EO NO. A1
CONTROL INFO NO. LDW280A6676		

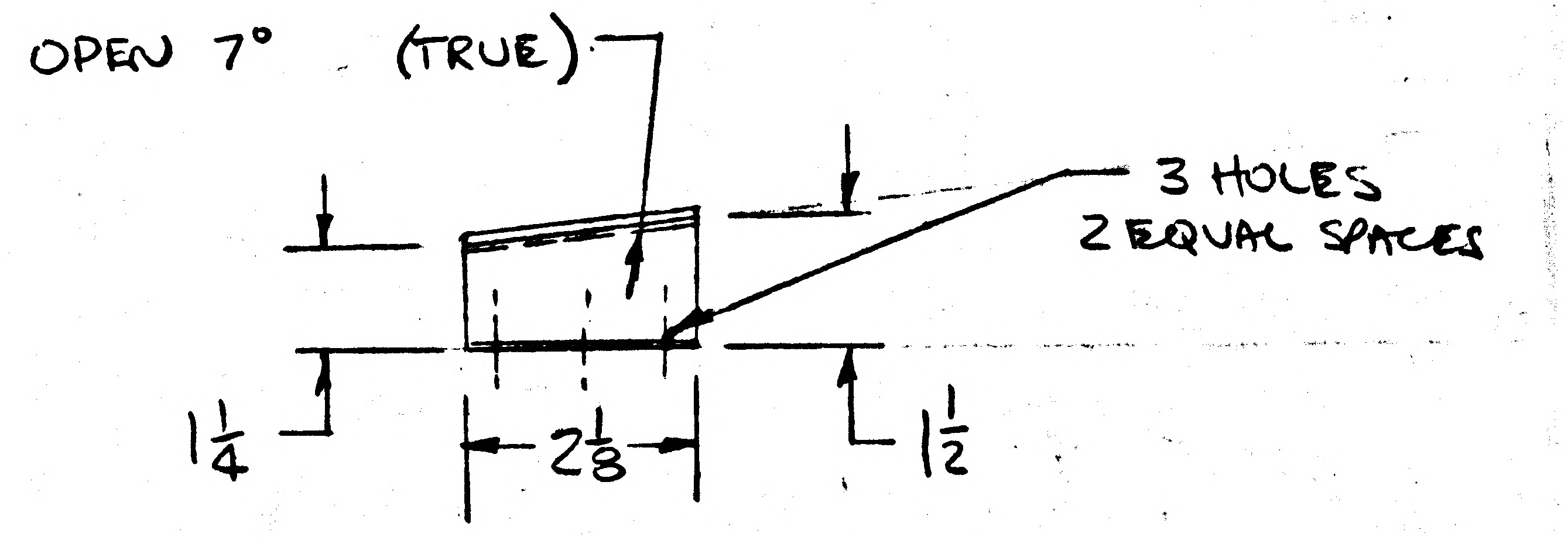
CREATE LDW280-18306 -11, -13 & -15 ZEE.
MAKE FROM 7075-T6 AL ALY SHT. QQ-A-250/12 .032 THICK
FINISH #88 5/32 (MIN) BEND RADIUS I&T=E
1 EA REQ'D PER VEHICLE. EFFECTIVE FOR LM-1 (31) ONLY.
NEXT ASSY IS LDW280P51101.
DWG TOLERANCES ARE ± 1/16 & ± 2° & ±.015
HOLES NOTED ARE #30 (.127-.133 DIA)


12 3/8
1 11/16
1 11/16
*5/16 (TYP)
9 HOLES
8 EQUAL SPACES
3/4*
OPEN 4°
5/8*
*1/4
* DIMS TYP
FOR ALL ZEES

LDW280-18306-11


1/4 R MAX CORNER TRIM *
OPEN 4°
(TRUE)
4 HOLES 3 EQUAL SPACES
1 9/16
1 11/16
6

LDW280-18306-13


OPEN 7° (TRUE)
3 HOLES
2 EQUAL SPACES
1 1/4
2 1/8
1 1/2

LDW280-18306-15

* NEW DWG – PARTS NOT MADE

DETAIL SPEC REQ		CL II ENGRG CHG ✓	CL I ENGRG CHG	LCD-1244	5
REASON FOR EO: TO PROVIDE SUPPORT FOR -Z DECK FITH SHIELD			DESCRIPTION OF EO: EO A-1 PARTS MADE PER EO INITIAL DRAWING RELEASE		GAEC EO RELEASE C JK 5/1/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQ'D		DISPOSITION OF PARTS		APPROVED BY								
		NOT REQ'D		DATE	5/1/67			4/30/67	5/1/67		5/1/67	5-1-67
REVISE DWG *	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE-DESCENT STAGE - Z UPPER DECK FITH SHIELD SUPPORT	LDW280-18306	A1

ISSUED BY A.F. MARZELLA
SECTION VEHICLE DESIGN
GROUP NO. 335 PL 25

C

ENG 32.1 R 5

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18306
EO NO. A2
CONTROL INFO NO. LDW280A7290

IN M/B FOR -11, -13 & -15: ADD LM-2(32) EFF ON
N/A LDW280P51101 (QTY THE SAME)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD-1244	5

REASON FOR EO
TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO
IN M/B FOR -11, -13 & -15 ADDED LM-2(32)
(1 EA/REQD)

GAEC EO RELEASE C: VK 6/16/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC IT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-2(32)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓		NOT	REQD

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT
APPROVED BY				JAS	W/			
DATE	6/12/67			6/12/67	6/13/67		6/15/67	6/16/67
5	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE-DESCENT STAGE--ZUPPER DECK FITH SHIELD SUPPORT	LDW280-18306	A2

ISSUED BY STEA/STRAKOSCH X1156 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

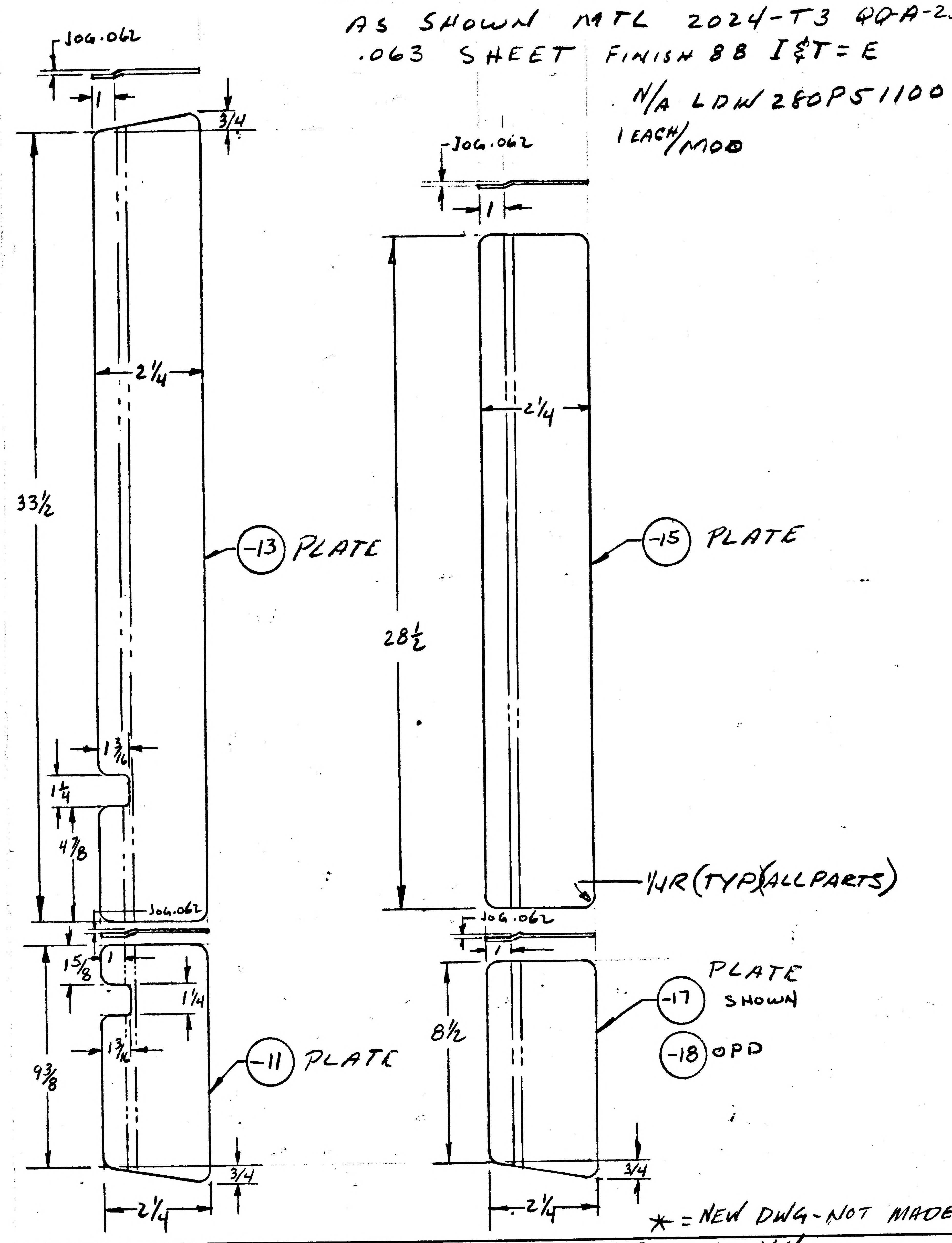
FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18307	EO NO. A1
CONTROL INFO NO. LDW280A6742	

CREATE -11 -13, -15, -17 & -18 PLATE
AS SHOWN MTL 2024-T3 QQ-A-250/4
.063 SHEET FINISH 88 I&T=E

N/A LDW280P51100
1 EACH/MOD



JOG .062
1
3/4
33½
2¼
-13 PLATE
1 3/16
1¼
4 7/8
JOG .062
15/8
1
1¼
1 3/16
-11 PLATE
9 3/8
3/4
2¼
JOG .062
1
2¼
-15 PLATE
28½
1/4R (TYP)(ALL PARTS)
JOG .062
1
8½
-17 PLATE SHOWN
-18 OPP
3/4
2¼

* = NEW DWG - NOT MADE

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD-1244 5

REASON FOR EO: TO SUPPORT FITH SHIELD

DESCRIPTION OF EO: EO A1 PARTS MADE PER EO

Ⓡ GAEC EO RELEASE C: JK 5/2/67

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (3)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	Jap			JAS	WB		[illegible]	AC
*		NOT REQ		DATE	5/2/67			5/2/67	5/2/67		5/2/67	5-2-67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	D	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE - DESCENT STAGE - FWD UPR DECK - FITH SHIELD SUPPORT	LDW280-18307	A1

ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

A **FITH**

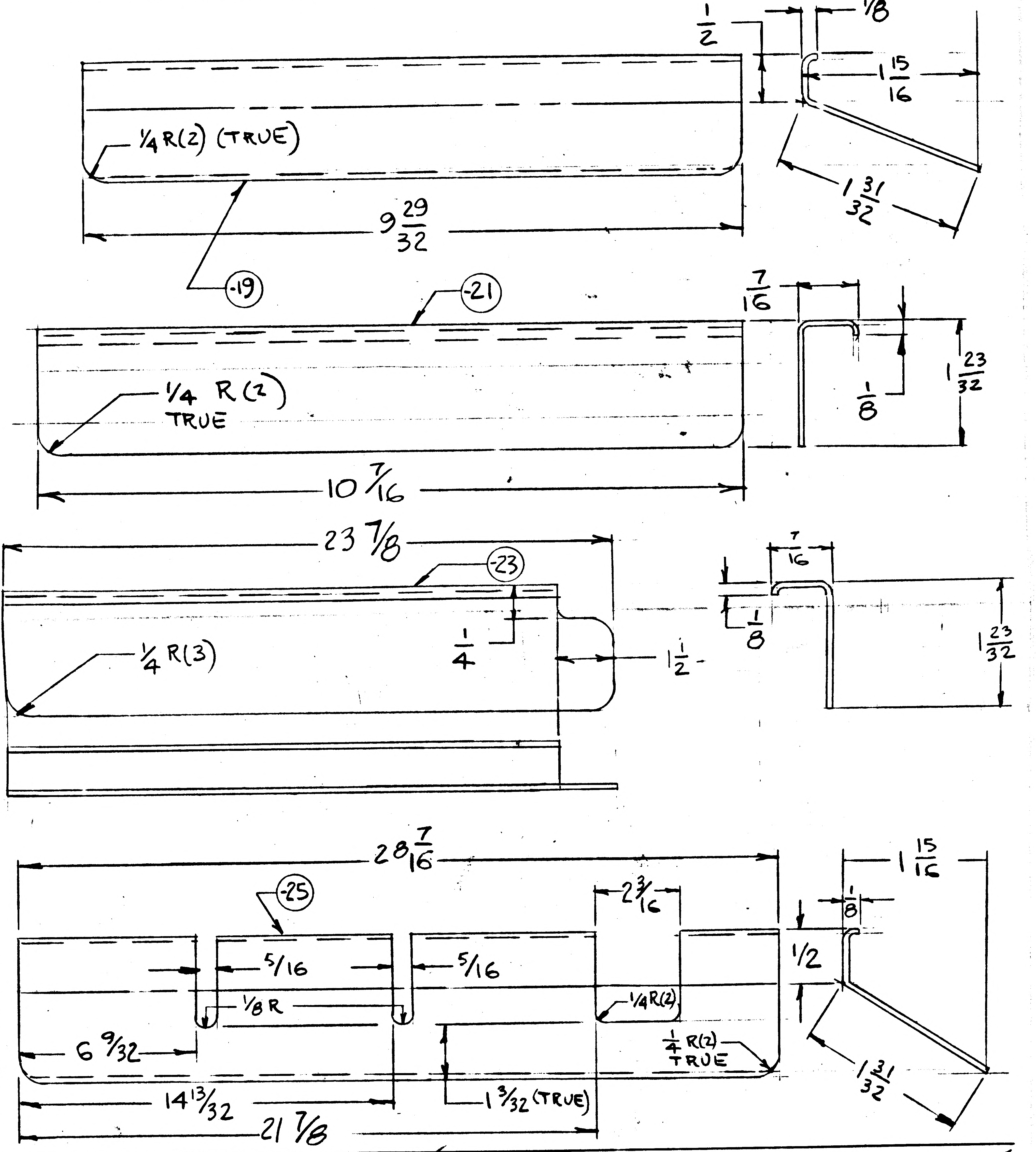
ENG 32.2 REV 3-65

* GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18307	EO NO.	A2
CONTROL INFO NO.	LDW280A7144		

IN M/B, B/M & FLD ADD -19(2 REQD), -21(2 REQD), -23(1 REQD) & -25 (1 REQD) - N/A LDW280P51100 EFF LM-2/32)

MATERIAL: .050 AL ALLOY SH 2024 QQ-A-250/4 B.R 1/16
HT T4 FINISH 88



1/2
1/8
1 15/16
1/4 R(2) (TRUE)
9 29/32
1 31/32
-19
-21
7/16
1/4 R(2) TRUE
1/8
1 23/32
10 7/16
23 7/8
-23
7/16
1/8
1/4 R(3)
1/4
1 1/2
1 23/32
28 7/16
-25
2 3/16
1 15/16
1/8
5/16
5/16
1/2
1/8 R
1/4 R(2)
6 9/32
1/4 R(2) TRUE
1 31/32
14 13/32
1 3/32 (TRUE)
21 7/8

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD-1244	5

REASON FOR EO	TO PROVIDE FOR FITH SHIELD
DESCRIPTION OF EO	IN M/B, B/M & FLD ADDED -19(2), -21(2), -23(1) & -25(1) N/A LDW280P51100 EFF LM-2/32)
GAEC EO RELEASE	C JK 6/20/67

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JAF			JRS	WJH			
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP	DATE	6/12/67			6/12/67	6/13/67		6/15/67	6/17/67
				5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE - D.S. - FWD UPPER DK - FITH SHIELD SUPT	LDW280-18307	A2

ISSUED BY STEA / STRAKOSCH X1156 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

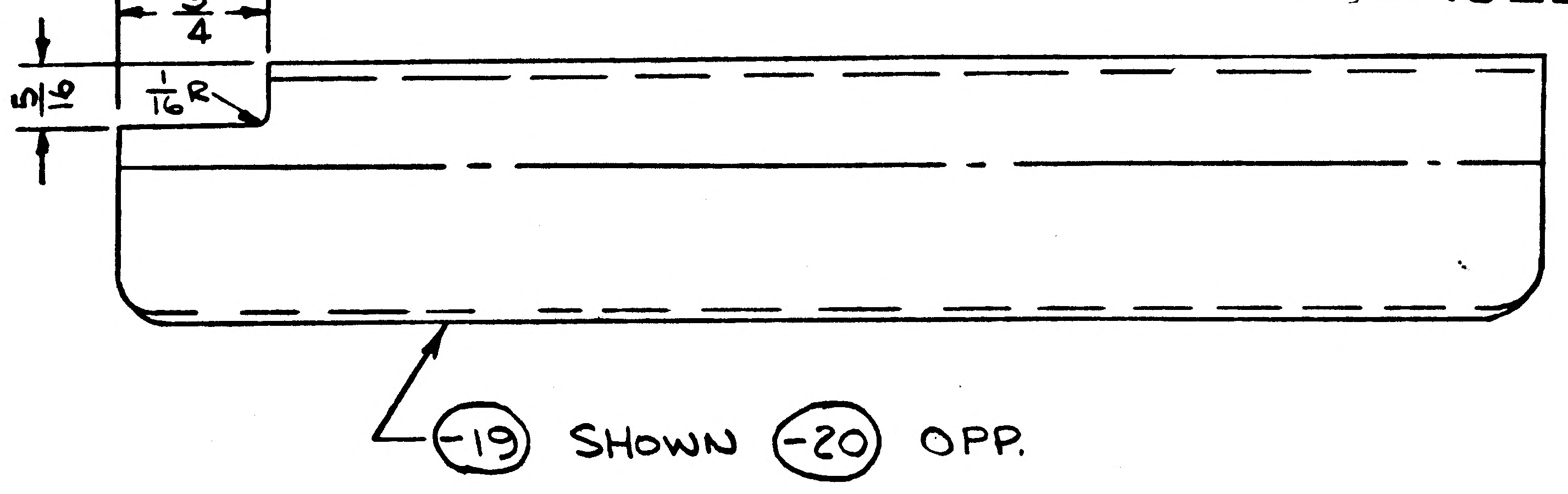
ING 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

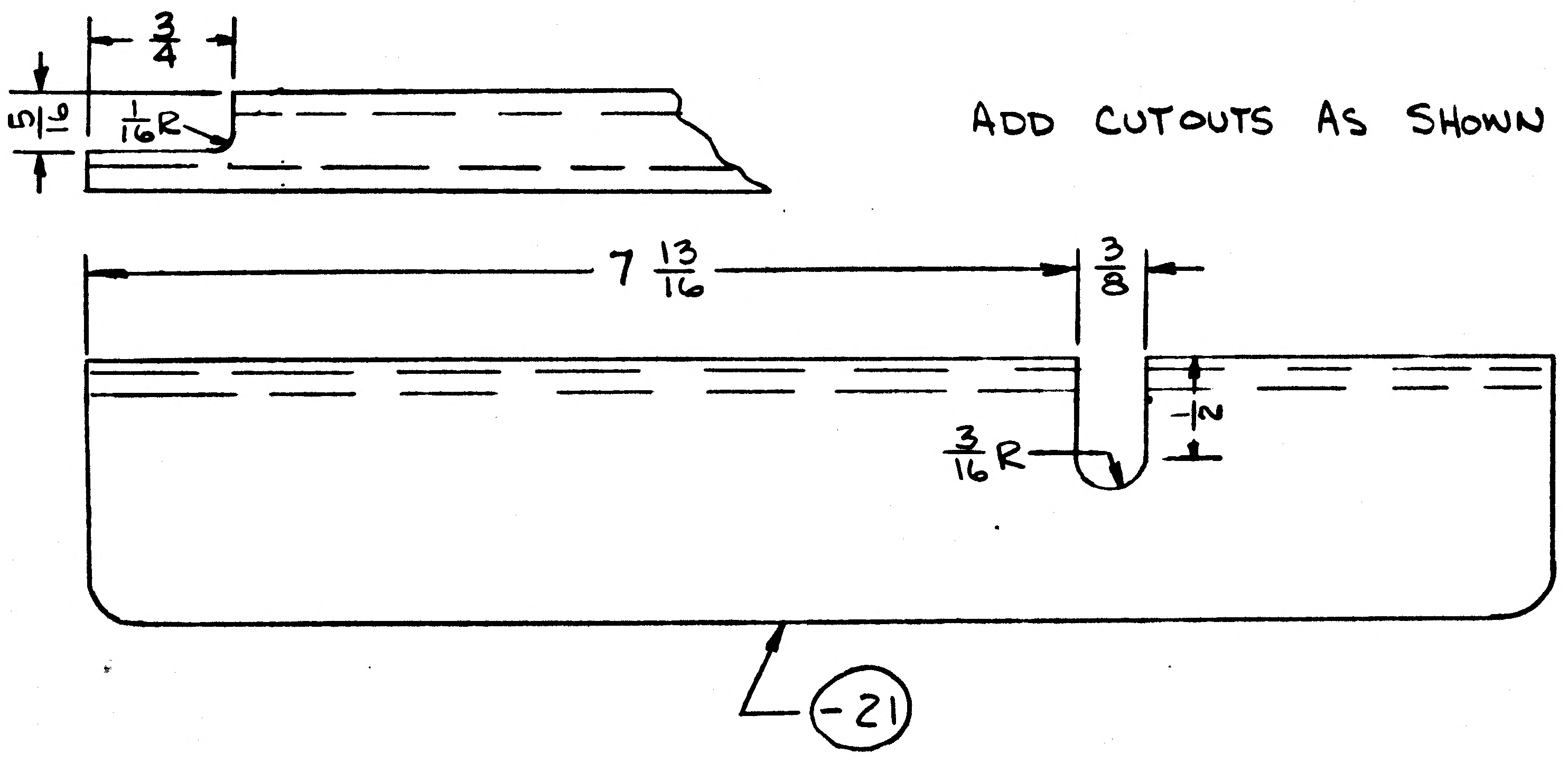
DWG. NO. LDW 280-18307	EO NO. A3
CONTROL INFO NO. LM-F 15554	

ON -19, -21
ADD CUTOUT & -20 AS SHOWN

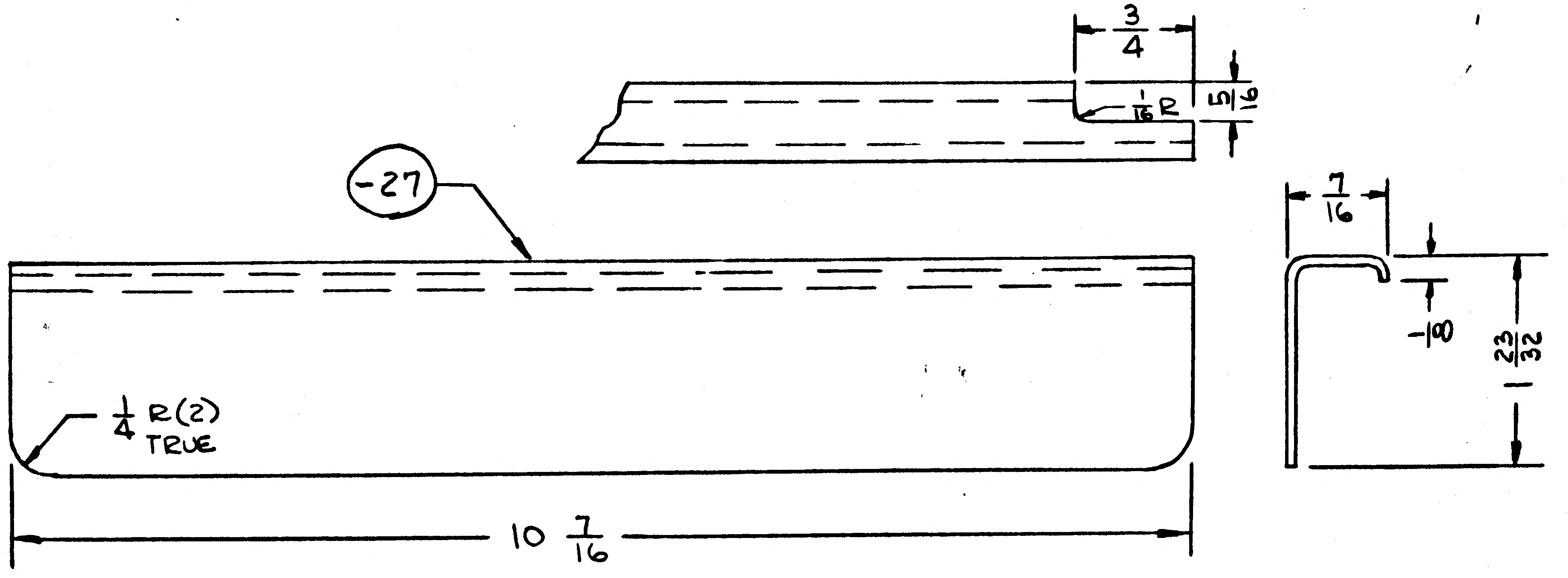
RELEASED BY LIAISON



ADD CUTOUTS AS SHOWN



IN M/B, B/M & F/D ADD -27 (1 REQ'D) LDW280P51100
MATERIAL .050 AL ALLOY SHT 2024, QQ-A-250/4 B.R. 1/16, HT T4, FINISH 88



IN M/B
FOR QTY OF -19 & -21 (2) S/B (1)
ADD (1) -20 & (1) -27
N/A LDW280P51100, EFF LM-2 (32)

REWORK INSTRUCTIONS
-19 CAN BE REWORKED TO -20
-21 CAN BE REWORKED TO -27

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: PROVIDE CLEARANCE

DESCRIPTION OF EO: -19, -21
ADDED 3/4 x 5/16 CUTOUT TO -19 & -21, ADDED 3/8 x 1/2 CUTOUT TO -21, CREATED -20 & -27, QTY OF (1) -19 & (1) -21 WAS (2) -19 & (2) -21

GAEC C EO RELEASE: JK 32 05 025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JAP			—	DV	DV	[illegible]	[illegible]
DATE	8/31/67			—	8/9/67	8/9/67	8/31/67	9/26/67
7/7/67	VDI							

PRIORITY: C
DRAWING TITLE: PLATE - D.S. - FWD UPPER DECK - FIFTH SHIELD SUPPORT
DRAWING NO.: LDW 280-18307
EO NO.: A3

ISSUED BY: LIAISON A. VENTO X-86226 SECTION VDI/J. STRAKOSCH GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18311 A

LFM

LFM420-2370-003			
LDW 420-2370	LDW420-2386	SER# 1	2
LM	LDW 280-53501	LM-3(33)	1

PART NO. LDW280-18311-11 & -23

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54525	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
		LM-4(34)	2
LM	LDW280-54525	LM-3(33)	2

PART NO. LDW280-18311-17 GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23504	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-23504	LM-4(34)	1

PART NO. LDW280-18311-25 GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23540	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
LM	LDW280-23540	LM-3(33)	1 EA

PART NO. LDW280-18311-19 -20, -27 & -28 GAEC SCH NO. 52

WORK PKG FUNCTION NO. 110

LINE ITEM

DOCUMENTATION TYPE II (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REL C INFO A		
LAST DASH NO. USED	-28	PRIM NO. 207	JK(001) ME-3A	12/3/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD-1244

CONTRACT NO. NAS9-1100

DRAWN BY	J. BIANCHINO 7/14/67	RELIABILITY	
LAYOUT BY	F. STEINMETZ		
CHECKED BY	7.14.67		
GP LEADER	7/14/67		
VEH DES INT	Pugatore 7/17/67		
STRUCTURES	WB 7/18/67	PROJ ENGR	7/19
STRUCTURES	7/18/67	REL GROUP	Tagliavia 7/20/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TEE–
DESCENT STAGE–UPPER DECK–
FITH BLANKET SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18311	A
SCALE	NONE	SHEET 1.00 OF 4	

G 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18311 -25	E	TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE #33481 x 31	SEE NOTE 2	88	
		-28		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.063 x 2 x 13	T6		
		-27		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.063 x 2 x 13	T6		
		-17		FILLER	AL ALLOY SH	QQ-A-250/4	2024-T3	.024 x 1 x 2	NONE		
		-23		BRACKET	AL ALLOY SHT	QQ-A-250/12	7075	.050 x 4 x 12	T6		
		-20		TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE #33481 x 12	SEE NOTE 2		
		-19		TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE #33481 x 12	SEE NOTE 2		
		LDW280-18311-11	E	TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE #33481 x 24	SEE NOTE 2	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18311 | A

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00 & 3.00		P LFM420-2370 -003		✓		EOA1 LCD 1244 CCA-667	IN F/D & L/M REMOVED -13, -14 & -15. ADDED -19, -20, -21, -22, -23 & -25. ADDED PILOT HOLE FOR -11, (DRILL # 40). ADDED SH. 1.10	LM-3 THRU LM-15 & SER. #1	✓	-13, -14, & -15	G. WIEBER 11-27-68		
	2	1.00		LFM420-2370 -003		✓		LEO 280-747 LCD 1244 CCA-667	REVISED M/B E.I. LMF420-2370-003, SER #1 WAS LDW420-2370, SER #2 LDW420-2370 (NOT APPLICABLE)	SER #1	NOT	REQD			
	3	1.00, 2.00 & 3.00				✓		EOA3 LCD 1244 CCA-667	REFERENCE EOA1. IN FLD/DWG, B/M & MOD/BLK, -27 & -28 WAS -21 & -22. IN FLD/DWG FOR -19 & -20, RELOCATED HOLES & REVISED END TRIM.	LM-3 THRU LM-15 & SER #1	✓	-21 & -22			
	4	3.00		LFM420-2370 -003			✓	EOA4	ON -27 & -28 TRIM 1/4 WAS 5/32	LM-3 THRU LM-15 & SER #1	✓				
	5	1.00			✓			EOA5	FOR -17 ADDED N/A LDW280-54525 (2) REQ'D/MOD EFF. LM-4 (34) THRU LM-15(45) WAS N/A LDW280-53501 (2) REQ'D/MOD EFF. LM-4 (34) THRU LM-15(45)	LM-4 THRU LM-15	NOT	REQ'D			
	6	1.00		S LFM420-2370 -003		✓		EOA6 LCD 1244 CCA-667	REMOVED -19, -20, -27, -28 (1EA), -17(6) -11 & -23 (2EA. WAS 1EA) N/A LDW420-2386 WAS LDW280-23540	SER #1		-19, -20 -27, -28 & -17	ES		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS					
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18311	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

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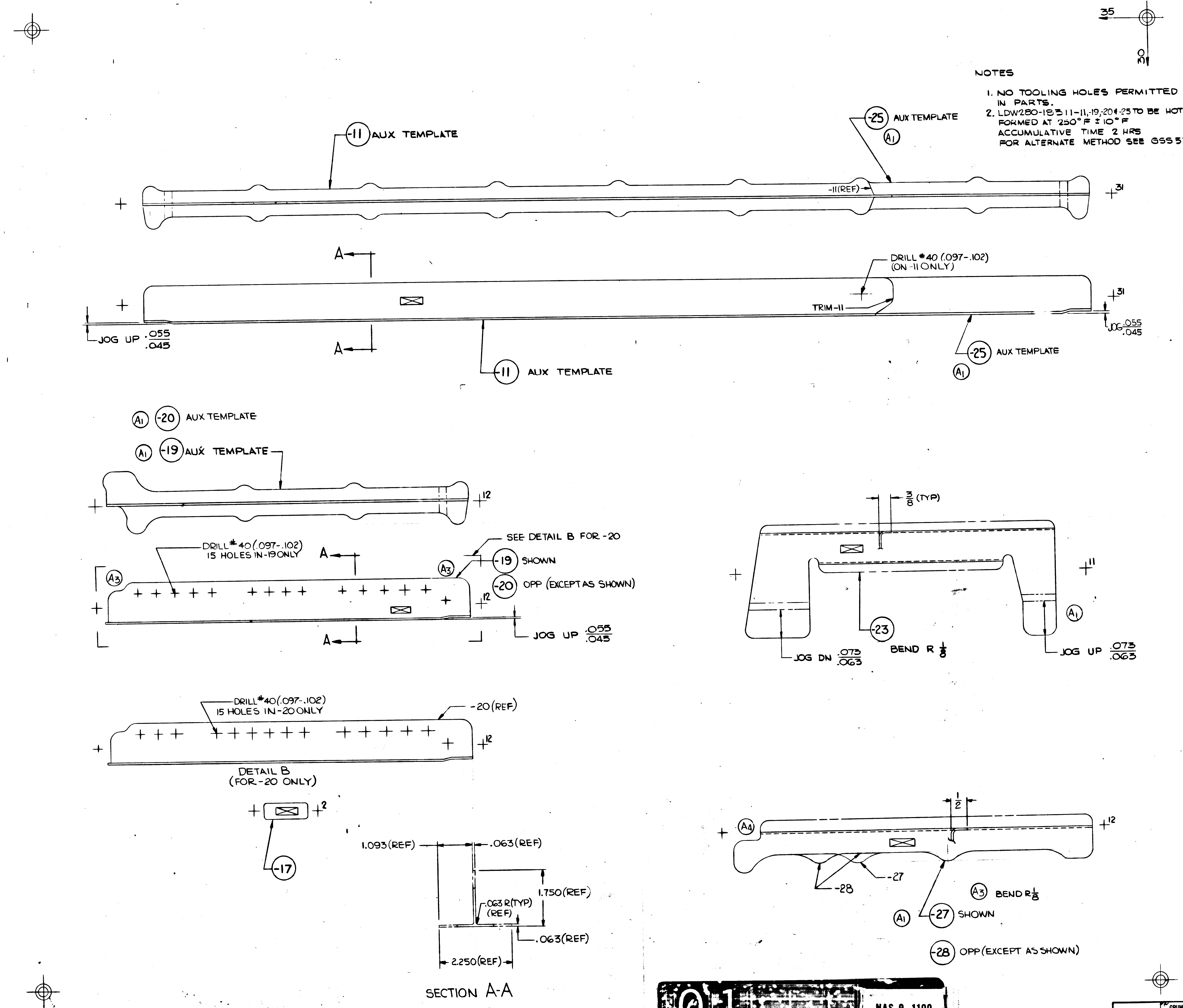
NAS 9-1100


35
-11 AUX TEMPLATE
-25 AUX TEMPLATE
A1
-11(REF)
31
A
DRILL #40 (.097-.102)
(ON -11 ONLY)
TRIM-11
JOG UP .055/.045
JOG .055/.045
-11 AUX TEMPLATE
-25 AUX TEMPLATE
A1
A1 -20 AUX TEMPLATE
A1 -19 AUX TEMPLATE
12
DRILL #40 (.097-.102)
15 HOLES IN-19 ONLY
SEE DETAIL B FOR -20
A3
-19 SHOWN
-20 OPP (EXCEPT AS SHOWN)
JOG UP .055/.045
3/8 (TYP)
11
-23
A1
JOG DN .073/.063
BEND R 1/8
JOG UP .073/.063
DRILL #40 (.097-.102)
15 HOLES IN-20 ONLY
-20 (REF)
DETAIL B
(FOR-20 ONLY)
2
-17
1.093 (REF)
.063 (REF)
1.750 (REF)
.063 R (TYP)
(REF)
.063 (REF)
2.250 (REF)
SECTION A-A
1/2
A4
-28
-27
A3 BEND R 1/8
A1 -27 SHOWN
-28 OPP (EXCEPT AS SHOWN)

NOTES

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. LDW280-18311-11,-19,-20 & -25 TO BE HOT FORMED AT 250°F ± 10°F ACCUMULATIVE TIME 2 HRS FOR ALTERNATE METHOD SEE GSS 5300.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	E	26512	LDW280-18311	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION 1

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

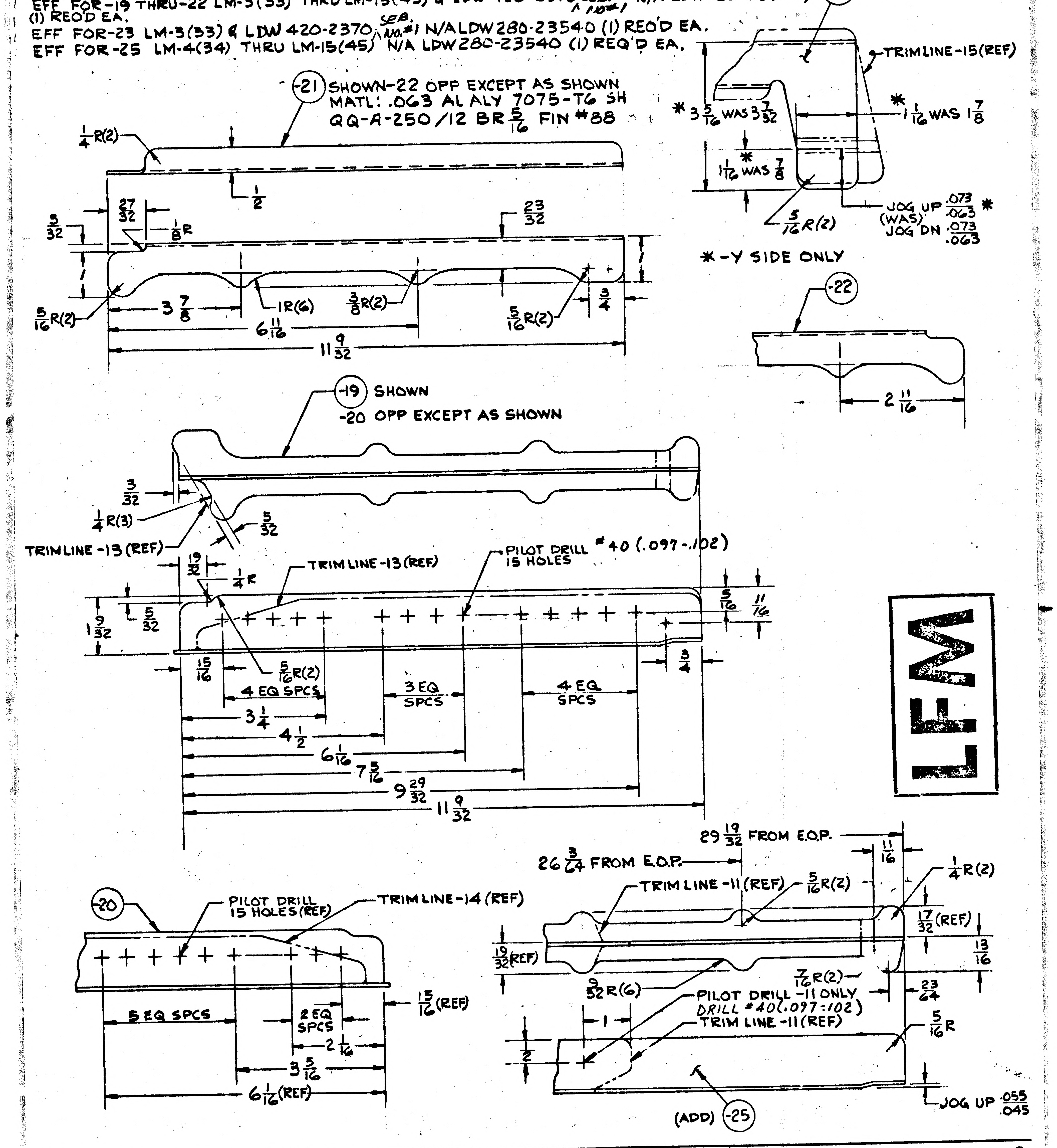
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18311 | EO NO. A1

CONTROL INFO NO. LDW 280 A 8807

IN F/D & L/M REMOVE -13 & -14 TEE. ADD -19 & -20 IDENTICAL TO -13 & -14 EXCEPT AS SHOWN. ADD -21 & -22 ANGLE AS SHOWN. REMOVE -15 BRACKET. ADD -23 IDENTICAL TO -15 EXCEPT AS SHOWN.
ADD -25 TEE IDENTICAL TO -11 EXCEPT AS SHOWN. IN F/D REWORK -11 AS SHOWN.
EFF FOR -19 THRU -22 LM-3(33) THRU LM-15(45) & LDW 420-2370 SER. NO #1, N/A LDW280-23540, (1) REQ'D EA.
EFF FOR -23 LM-3(33) & LDW 420-2370 SER. NO. #1 N/A LDW280-23540 (1) REQ'D EA.
EFF FOR -25 LM-4(34) THRU LM-15(45) N/A LDW280-23540 (1) REQ'D EA.



-23 (ADD)
TRIMLINE -15 (REF)
* 3 5/16 WAS 3 7/32
* 1 1/16 WAS 1 7/8
1 1/16 * WAS 7/8
5/16 R(2)
JOG UP .073/.063 *
(WAS) JOG DN .073/.063
* -Y SIDE ONLY
-22
2 11/16
-21 SHOWN -22 OPP EXCEPT AS SHOWN
MATL: .063 AL ALY 7075-T6 SH
QQ-A-250/12 BR 5/16 FIN #88
1/4 R(2)
1/2
5/32
27/32
1/8 R
23/32
5/16 R(2)
3 7/8
1R(6)
3/8 R(2)
6 11/16
5/16 R(2)
3/4
11 9/32
-19 SHOWN
-20 OPP EXCEPT AS SHOWN
3/32
1/4 R(3)
TRIMLINE -13 (REF)
5/32
19/32
1/4 R
TRIMLINE -13 (REF)
PILOT DRILL #40 (.097-.102)
15 HOLES
1 9/32
5/32
5/16
11/16
15/16
5/16 R(2)
4 EQ SPCS
3 EQ SPCS
4 EQ SPCS
3/4
3 1/4
4 1/2
6 1/16
7 5/16
9 29/32
11 9/32
LFM
-20
PILOT DRILL 15 HOLES (REF)
TRIM LINE -14 (REF)
5 EQ SPCS
2 EQ SPCS
2 1/16
3 5/16
6 1/16 (REF)
15/16 (REF)
29 19/32 FROM E.O.P.
26 3/64 FROM E.O.P.
11/16
TRIM LINE -11 (REF)
5/16 R(2)
1/4 R(2)
17/32 (REF)
13/16
13/32 (REF)
9/32 R(6)
7/16 R(2)
PILOT DRILL -11 ONLY
DRILL #40 (.097-.102)
TRIM LINE -11 (REF)
23/64
5/16 R
1
1/2
JOG UP .055/.045
(ADD) -25

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1244 CCA-667	3

REASON FOR EO: TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO: IN F/D & L/M REMOVED -13, -14 & -15. ADDED -19, -20, -21, -22, -23 & -25 ADDED PILOT HOLE FOR -11, (DRILL #40)

GAEC EO RELEASE: JL 9-23-7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) thru LM-15(45)	
	LM 420-2370-003		
	LDW420-2370 (SER. NO #1		

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓	-13 -14 -15	DATE	9/19/67			9/18/67	9/14/67		9/22/67	9/22/67
REVISE DWG	RECORD EO	REWORK	SCRAP	D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: TEE D/S UPPER DECK FITH BLANKET SUPPORT

DRAWING NO. LDW 280-18311

EO NO. A1

CDR 9-22-67

ISSUED BY DON THOMAS / STRAKOSCH

S. L.

SECTION VDI X 1153

GROUP NO. 335 PL 25

01 NAS 9-1100

LFM

ENG 3 REV 3-

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 747
CONTROL INFO NO. LDW -80A 9471		

REVISE M/B AS SHN FOR THE FOLLOWING DWGS (ALL DASH NO'S) (QTY & N/A ARE THE SAME)

E.I.
LDW 420-2370 - SER # 2 S/B LFM 420-2370-003 - SER # 1
LDW 420-2370

DWG	TITLE	CHG. NO	
LDW280-53507	SEE DWG	A1	✓
LDW280P18308		A2	✓
P18309		A3	✓
P18310		A3	✓
M17738		A1	✓
M17739		A1	✓
LDW280M17740	SEE DWG	A1	✓
LDW280-18311	SEE DWG.	A2	✓

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1244 CC A667

5

REASON FOR EO
TO CORRECT EFF FOR FITH TEST.

DESCRIPTION OF EO
REVISED M/B : E.I.
LFM 420-2370-003, SER # 1 WAS LDW420-2370, SER # 2
LDW 420-2370

GAEC C EO RELEASE
SK 10/9/67

MODEL	EFFECTIVITY: ~~PROGRAM & ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 420 2370-003		
LM	LDW 420-2370	SEE, #1	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY	JRS			JAS			NRB	
DATE	10/4/67			10/4/67	10/3/67		10/4/67	10/3/67
—	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	747

10/3/67
ISSUED BY DON RAGAS X1153 SECTION VDI GROUP NO. 335 PL 25

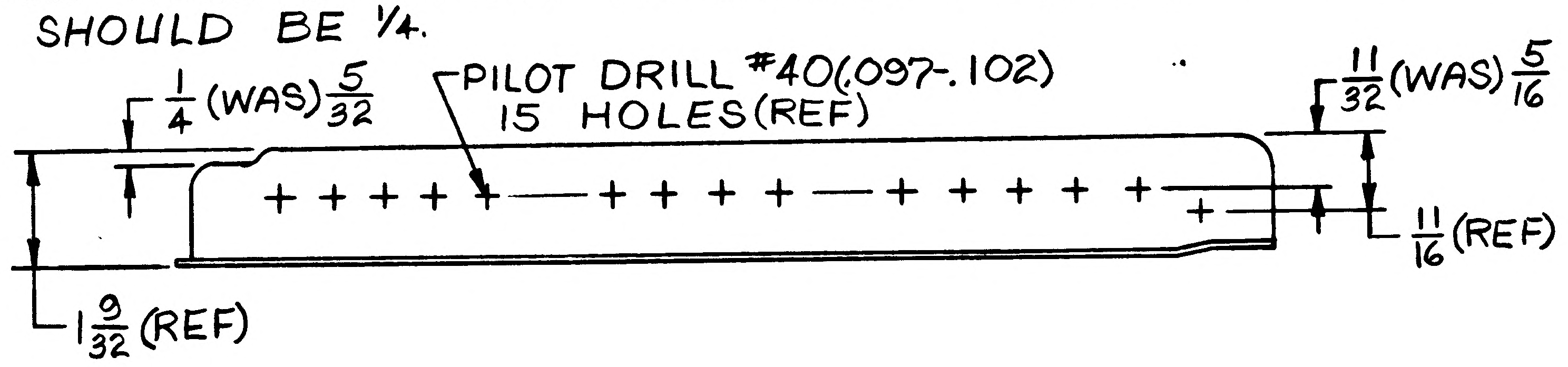
01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18311 | EO NO. A3
CONTROL INFO NO. LM-2-4108

IN FLD/DWG FOR -19 & -20
REVISE HOLE LOCATION 5/16 SHOULD BE 11/32 & REVISE END TRIM 5/32 SHOULD BE 1/4.



LDW280-18311-19 (SHOWN)
-20 (OPP)

IN FLD/DWG, B/M & MOD/BLK, REPLACE -21 & -22 WITH -27 & -28 (-27 & -28 ARE IDENTICAL TO -21 & -22 EXCEPT BEND R. OF 5/16 SHOULD BE 1/8, MAT'L 7075-T6 SHOULD BE 7075 & PROCESS TO "T6").

NOTE: FOR REWORK OF EXISTING -19 & -20 PARTS. FINISH TRIMMED AREA #76 (ALODINE). HOLE LOCATIONS ACCEPTABLE AS IS.

REFERENCE EO-A1 TO BE LOFTED

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD1244 CCA-667

2

REASON FOR EO: TO PROVIDE FOR FITH SHIELD. FASTENERS AT ASSY LOCATED IN BEND RADIUS OF ANGLE

DESCRIPTION OF EO: REFERENCE EO-A1 IN FLD/DWG, B/M & MOD/BLK, -27 & -28 WAS -21 & -22. IN FLD/DWG FOR -19 & -20, RELOCATED HOLES & REVISED END TRIM.

GAEC EO RELEASE: JK 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU	
		LM-15(45)	
		LDW420-2370	SER. #1

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP -21 -22

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JAS			–			MRB	
DATE	11/1/67				10/27/67	10/26/67	11/1/67	

PRIORITY: C
DRAWING TITLE: TEE~DESCENT STAGE~UPPER DECK~FITH BLANKET~SUPPORT
DRAWING NO.: LDW280-18311
EO NO.: A3

ISSUED BY LIAISON J. MALONEY 10/25/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

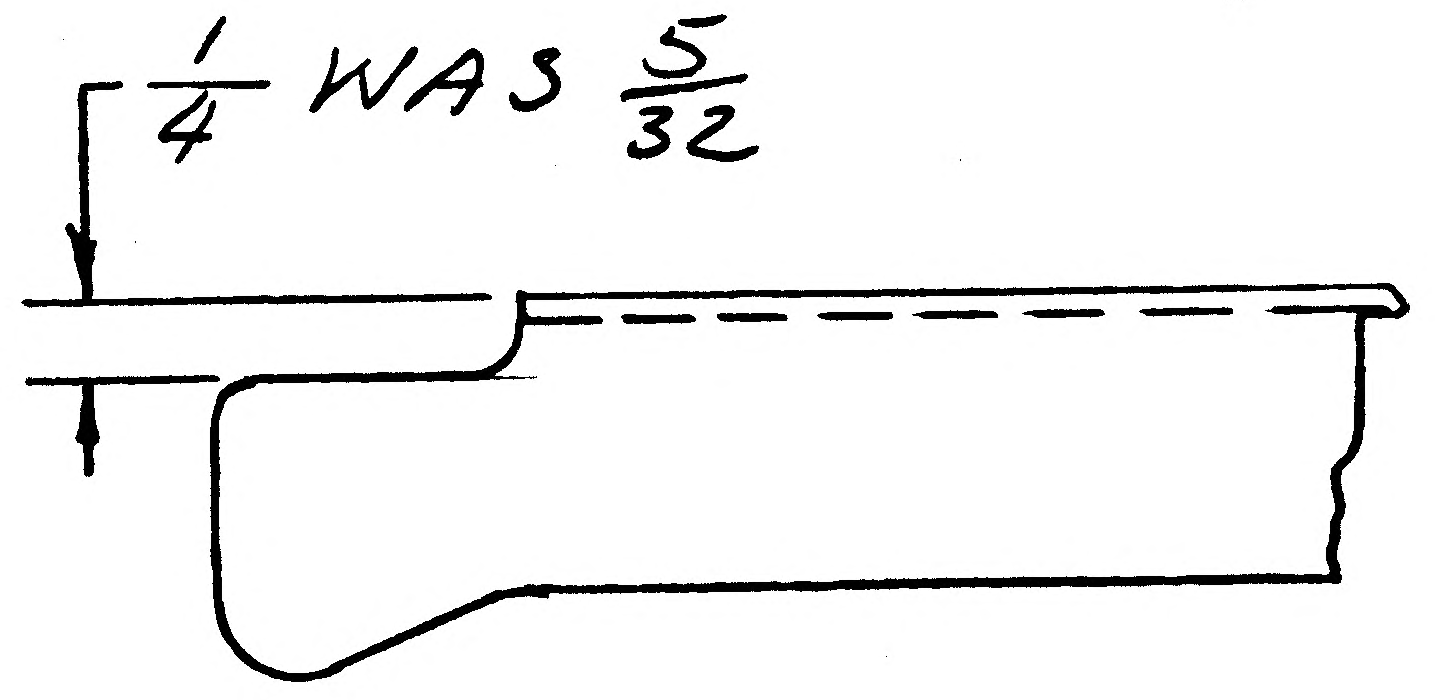
01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO. LDW280-18311		EO NO. A4	
CONTROL INFO NO. LM-5-17335			



LDW280-18311-27 & -28

RELEASED BY LIAISO

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE CLEARANCE ON INSTL.	ON-27 & -28 TRIM 1/4 WAS 5/32.	JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	
		LM420-2370-003	
		LDW 420-2370 SER.#1	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY								
DATE	12/2/67				11-15-67	11-15-67	12/2/67	11-15-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	TEE D/S-UPPER DECK FITH BLANKET SUPT.	LDW280-18311	A4

ISSUED BY LIAISON J. JARVIS SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODF IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18311		EO NO. A5
CONTROL INFO NO. LDW280B1523		

FOR -17 ADD N/A LDW280-54525 (2) REQ'D/MOD EFF: LM-4(34) THRU LM-15(45)
WAS N/A LDW280-53501 (2) REQ'D/MOD EFF: LM-4(34) THRU LM-15(45)

DETAIL SPEC REQ	✓	CL II ENGRG CHG		CL I ENGRG CHG	

(5)

REASON FOR EO: TO AGREE WITH CDR LIST

DESCRIPTION OF EO: FOR-17 ADDED N/A LDW280-54525 (2) REQ'D/MOD EFF. LM-4(34) THRU LM-15(45) WAS N/A LDW280-53501 (2) REQ'D/MOD EFF. LM-4(34) THRU LM-15(45)

Ⓡ GAEC EO RELEASE: C JK 1/24/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQ'D	

APPROVED BY									
DATE	1/20/68			1-20-68	1-22-68		1/20/68	1-23-68
—	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GCAP~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	TEE ~ DESCENT STAGE ~ UPPER DECK ~ FITH BLANKET SUPPORT	LDW280-18311	A5

ISSUED BY R.STOBE/P.THORJUSEN (EXT 1153) SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-18312 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
FM420-2370-003	LDW420-2370	SERIAL#1	1 EA
LM	LDW280-53502	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
LM	LDW280-53502	LM-3(33)	1 EA
PART NO. LDW280-18312-27 &-29		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM420-2370-003	LDW420-2370	SERIAL#1	2
LM	LDW280-53501	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
		LM-4(34)	2
LM	LDW280-53501	LM-3(33	2
PART NO. LDW280-18312-25		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM420-2370-003	LDW420-2370	SERIAL#1	1
LM	LDW280-53501	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
LM	LDW280-53501	LM-3(33)	1
PART NO. LDW280-18312-23		GAEC SCH NO.	

SH ~~REV STATUS~~: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET								
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST ~~DASH NO.~~ USED

~~GRUMMAN REL INFO~~

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES

~~ORIG DWG AUTH~~

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO.

LINE ITEM

DOCUMENTATION TYPE

DRAWN BY

LAYOUT BY

CHECKED BY

PROJ ENGR

~~REL GROUP~~

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18312 | A Ⓐ

SCALE NONE | SHEET 1.01 ~~OF~~

ENG 77.1 12-65

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NAS 9-1100

LDW280-18312 A

PART NO. LDW280-18312-35

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LFM420-2370-003	LDW420-2370	SER#1	2
LM	LDW280-53502	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
		LM-4(34)	2
LM	LDW280-53502	LM-3(33)	2

PART NO. LDW280-18312-33

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LFM420-2370-003	LDW420-2370	SER#1	2
LM	LDW280-53503	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
		LM-4(34)	2
LM	LDW280-53503	LM-3(33)	2

PART NO. LDW280-18312-31

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53503	LM-15(45)	2
		LM-14(45)	2
		LM-13(44)	2
		LM-12(43)	2
		LM-11(42)	2
		LM-10(40	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
		LM-4(34)	2
LM	LDW280-53503	LM-3(33)	2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET									
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED
LAST DASH NO. USED
GRUMMAN REL INFO
PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
PROJ ENGR
REL GROUP

LINE ITEM
DOCUMENTATION TYPE

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18312	A

Ⓐ

SCALE NONE
SHEET 1.02 ~~OF~~

ENG 77.1 12-65

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NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10 2.00, 3.00					✓	EC A1	IN B/M, MOD BLK & FLD REMOVED -11, -13 & -14 ADDED SH 1.10	LM-3 THRU LM-15		✓	RICHARD ROSARIO 12-18-67		
	2	1.00, 1.10 2.00, 3.00					✓	EO A2	ADDED -21, IN MOD BLK FOR -17, 2 REQD WAS 4 REQD. -17 MAYBE REWORKED INTO -21	LM-3	NO	TED			
	3	1.00, 1.10					✓	LEO280-685	ON INCORP OF EO A1, ADDED SERIAL #2 TO EFF	SERIAL # 2	NOT	REQD			
	4	1.01, 1.10 2.00, 3.00		P		✓		EOA4, LCD1244 CCA667	ADDED -23, ADDED NOTE 2 & SH 1.01	LM-3 THRU LM-15 & SERIAL # 1					
	5	1.10, 2.00				✓		EOA5, LCD1244 CCA667	ON -23 IN B/M ADDED FIN #88, REF EO A4		✓				
	6	1.00 1.10		B		✓		EO A6 LCD 1244	IN MOD BLK FOR -17 & -19 ADDED N/A LDW280-53501 LM-4 THRU LM-15 EFF, 4 EA REQD	LM-4 THRU LM-15	NOT	REQD			
	7	1.01, 1.10 2.00, 3.00				✓		EOA7, LCD1244 CCA-667	ADDED -25, -27 & -29	LM-3 THRU LM-15 & SER # 1					
	8	1.02, 1.10 2.00, 3.00				✓		EOA8, LCD1244 CCA 667	ADDED -31, REVISED QTY FOR -15 N/A LDW280-53503 (20) WAS (24), N/A LDW280-53502 (8) WAS (10) ADDED SH 1.02	LM-3 THRU LM-15		-15			
	9					✓		EO A9 LCD 1244 CCA 667	REVISED MOD BLK FOR -31, ADDED E.I. LFM420-2370-003, LDW420-2370, SER # 1 (4 REQD) REVISED QTY -31, N/A LDW280-53503, 2 REQD WAS 4 REQD. ADDED -33	LM-3 (33) THRU LM-15 (45) & SER # 1		-31			
	10					✓		EOA10; CCA667 LCD1244	ADDED -35, REMOVED -31					LD	
	11	1.00 1.10					✓		IN MOD BLK -15, -17 & -19 SERIAL # 2 SHOULD BE SERIAL # 1 (DRAWING ERROR CORRECTION)	SERIAL # 1	NOT	REQD			

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY
A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18312	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

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NAS 9-1100

DW420-2370	LDW280-53501	#1	12
LM	LDW280-53501	LM-15(45)	4
		THRU	
LM	LDW280-53501	LM-4 (34)	4
LM	LDW280-53501	LM-3(33)	2
ART NO. LDW280-18312-17			

LM	LDW280-53501	LM-3(33)	2
PART NO. LDW280-18312-21			

LDW280-18312 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
DW420-2370	LDW280-53503	#1	72
LM		LM-15 (45)	20
		LM-14 (44)	20
		LM-13 (43)	20
		LM-12 (42)	20
		LM-11 (41)	20
		LM-10 (40)	20
		LM-9 (39)	20
		LM-8 (38)	20
		LM-7 (37)	20
		LM-6 (36)	20
		LM-5 (35)	20
		LM-4 (34)	20
LM	LDW280-53503	LM-3 (33)	20
PART NO. LDW 280-18312-15		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LDW420-2370	LDW280-53502	#1	30
LM		LM-15 (45)	8
		LM-14 (44)	8
		LM-13 (43)	8
		LM-12 (42)	8
		LM-11 (41)	8
		LM-10 (40)	8
		LM-9 (39)	8
		LM-8 (38)	8
		LM-7 (37)	8
		LM-6 (36)	8
		LM-5 (35)	8
		LM-4 (34)	8
LM	LDW280-53502	LM-3 (33)	8
PART NO. LDW280-18312-15		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LDW420-2370	LDW280-53501	#1	12
LM		LM-15 (45)	4
		LM-14 (44)	4
		LM-13 (43)	4
		LM-12 (42)	4
		LM-11 (41)	4
		LM-10 (40)	4
		LM-9 (39)	4
		LM-8 (38)	4
		LM-7 (37)	4
		LM-6 (36)	4
		LM-5 (35)	4
		LM-4 (34)	4
LM	LDW280-53501	LM-3 (33)	4
PART NO. LDW280-18312-19		GAEC SCH NO. 52	

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET	1.01			
REV	A			
SHEET	1.02			
REV	A			

LAST SECT LTR USED	
LAST DASH NO. USED	-35

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) MP-1A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD-1244	

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II (5)

DRAWN BY	J. BIANCHINO 7/14/67	RELIABILITY	
LAYOUT BY	F. STEINMETZ FS		
CHECKED BY	D.FASS 7-14-67		
GP LEADER	for L. STERKOSCH		
VEH DES INT	C. Pusateri 7/17/67		
STRUCTURES	NM 7/17/67	PROJ ENGR	7/19
STRUCTURES	7/19	REL GROUP	Tagliavia 7/20/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET -
DESCENT STAGE-UPPER DECK
FITH SHIELD SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18312	A
SCALE	NONE	SHEET 1.00 OF 6	

ENG 77.1 12-65

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NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18312-35	E		GUSSET	AL ALY SH	QQ-A-250/12	7075-T6	.036 × 4 × 7	NONE	88	
	↑ -33	↑		DOUBLER	AL ALY SH	QQ-A-250/12	7075-T6	.036 × 5 × 7	NONE	88	
	-31			STRIP	↑	↑	↑	.036 × 2 × 3	↑	↑	
	-29			GUSSET			↓	.028 × 2 × 3	↓		
	-27			GUSSET	↓	↓	7075-T6	.028 × 2 × 3	NONE		
	-25			CLIP	AL ALY SH	QQ-A-250/12	7075	.050 × 3 × 3	T6		
	-23			CLIP	AL ALY EXTR	QQ-A-200/11	7075-T6511	DIE #22417 × 2 1/4	NONE		
	-21			GUSSET	AL ALY SH	QQ-A-250/12	7075	.050 × 3 × 4	T6		
	-19			GUSSET	↑	↑	↑	.040 × 2 × 3	↑		
	↓ -17	↓		GUSSET	↓	↓	↓	.050 × 3 × 4	↓	↓	
	LDW280-18312-15	E		GUSSET	AL ALY SH	QQ-A-250/12	7075	.032 × 2 × 2	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18312	A (A)
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

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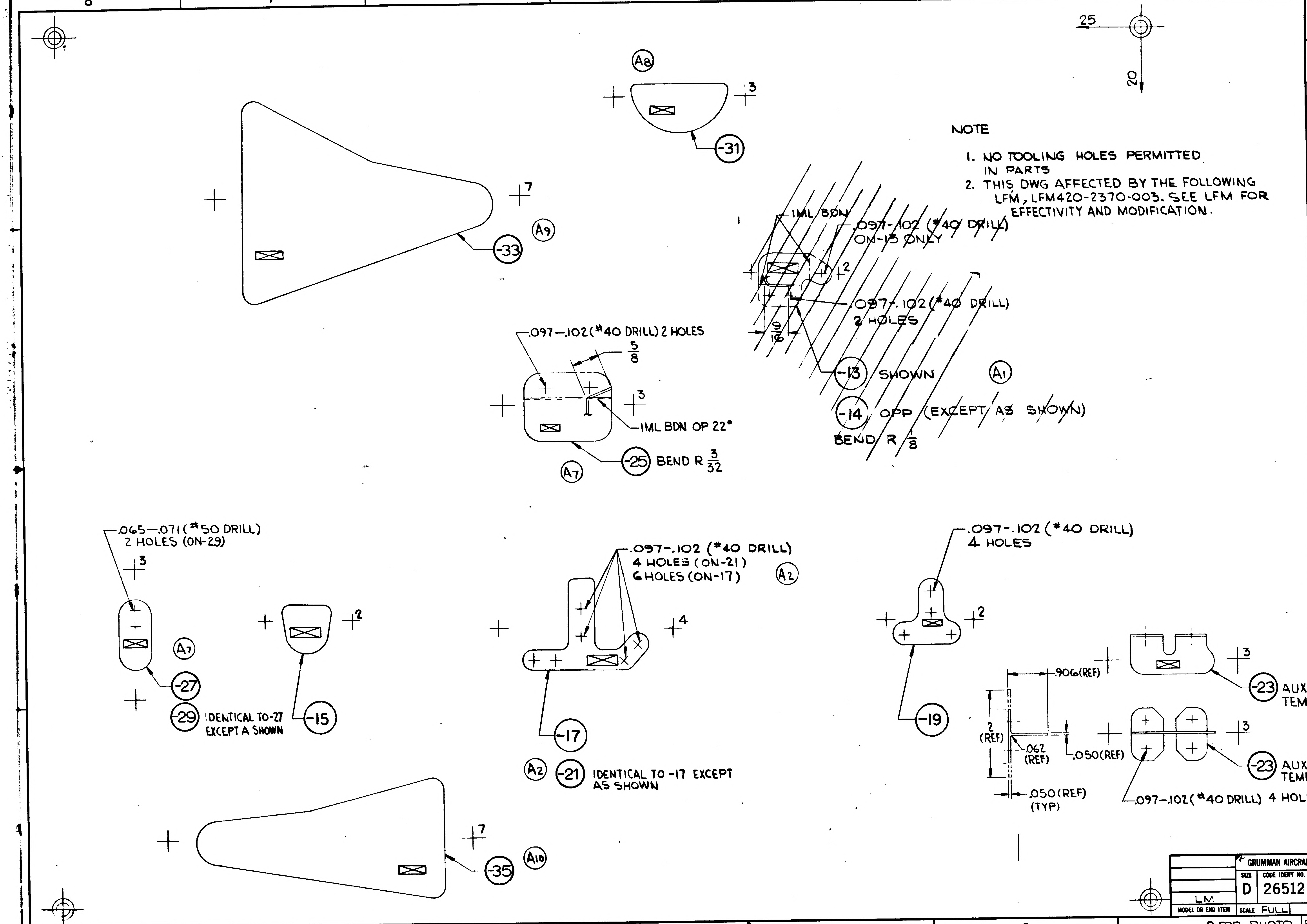
NAS 9-1100


8
7
6
5
LDW280-18312 A
4
3
2
1
25
20
A8
-31
3
7
A9
-33
.097-.102(#40 DRILL) 2 HOLES
5/8
3
IML BDN OP 22°
A7
-25 BEND R 3/32
IML BDN
.097-.102 (#40 DRILL) ON-13 ONLY
2
.097-.102(#40 DRILL) 2 HOLES
9/16
-13 SHOWN
A1
-14 OPP (EXCEPT AS SHOWN)
BEND R 1/8
.065-.071(#50 DRILL) 2 HOLES (ON-29)
3
A7
-27
-29 IDENTICAL TO -27 EXCEPT AS SHOWN
2
-15
.097-.102 (#40 DRILL) 4 HOLES (ON-21) 6 HOLES (ON-17)
A2
4
-17
A2
-21 IDENTICAL TO -17 EXCEPT AS SHOWN
.097-.102 (#40 DRILL) 4 HOLES
2
-19
3
-23 AUX TEMPLATE
.906(REF)
2 (REF)
.062 (REF)
.050(REF)
.050(REF) (TYP)
3
A4
-23 AUX TEMPLATE
.097-.102(#40 DRILL) 4 HOLES
7
A10
-35

NOTE

1. NO TOOLING HOLES PERMITTED IN PARTS
2. THIS DWG AFFECTED BY THE FOLLOWING LFM, LFM420-2370-003. SEE LFM FOR EFFECTIVITY AND MODIFICATION.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18312	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18312		EO NO. B1
CONTROL INFO NO. LDW280B1887		

REMOVE -25 (2REQD/MOD) EFF LM-3(33) THRU LM-15(45), LFM420-2370-003 SER#1
N/A LDW280-53501, LDW420-2370

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1244 (CCA667) (PKG 36) (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PART NOT REQD FOR FITH SHIELD	REMOVED -25 (2REQD/MOD)	VC 2/2

MODEL	EFFECTIVITY: ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT~~ NO.
LM		LM-3(33) THRU LM-15 (45)	
	LDW420-2370 SER#1		
	LFM420-2370-003		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY									
DATE	2/2/68			2/2/68	2/5/68		2/2/68	2/2/68	
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S UPPER DECK FITH SHIELD SUPT	LDW280-18312	B1

CDR 2/9/68
ISSUED BY V.A. CHRISTINA / P.THORJUSEN SECTION VDI X1153 GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18312 | EO NO. B2

CONTROL INFO NO. LDW280B2526

FOR THE FOLLOWING DASH NUMBERS ~ REVISE QTY REQD PER MODULE IN MODEL BLOCK FOR LFM420-2370-003 EFFECTIVITY
LDW420-2370 SER#1

-17 (12 REQ'D S/B 4 REQD)
-19 (12 REQ'D S/B 8 REQ'D) } N/A LDW280-53501
-23 (1 REQ'D S/B 2 REQD)

-15 (30 REQ'D S/B 16 REQD)
-27 & -29 (1EA. REQ'D S/B 2EA REQD) } N/A LDW280-53502

-15 (72 REQD S/B 40 REQ'D)
-33 (2 REQD S/B 4 REQD) } N/A LDW280-53503

FOR THE FOLLOWING DASH NUMBERS ADD EFFECTIVITY LFM420-2370-003
LDW420-2370 SER#1

-21 (4 REQD/MOD) N/A LDW280-53501
-31 (4 REQD/MOD) N/A LDW280-53503

LFM

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 1244 (CCA667) | (PKG 46)

REASON FOR EO: ADDITIONAL PARTS REQD FOR TEST & QTY CHANGED TO AGREE WITH N/A

DESCRIPTION OF EO: -17 (4 REQD WAS 12 REQD), -19 (8 REQD WAS 12 REQD), -23 (2 REQD WAS 1 REQD) -15 (16 REQD WAS 30 REQD), -27 & -29 (2EA WAS 1EA), -15 (40 REQD WAS 72 REQD) -33 (4 REQD WAS 2 REQD) ADDED -21 & -31 (4EA) TO LFM420-2370-003, LDW420-2370 SER#1

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM420-	2370-003	
	LDW420-	2370 SER	#1

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOTED | REWORK | SCRAP

APPROVED BY								
DATE	[illegible]			3/5/68	[illegible]		3/[illegible]/68	3-8-68
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVR.

PRIORITY: C

DRAWING TITLE: BRACKET D/S UPPER DECK FITH SHIELD SUPT

DRAWING NO. LDW280-18312

EO NO. B2

CDR 3/13/68

ISSUED BY V.A. CHRISTINA / P. THORJUSEN

SECTION VDI Y1153

GROUP NO. 335 PL 25

1

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18312 EO NO. B3
CONTROL INFO NO. LM29-1234

IN MOD BLOCK FOR -35

2 REQD/MOD SHOULD BE 4 REQD/MOD N/A LDW280-53502

EFF. LFM 420-2370-003
LDW 420-2370 SERIAL #1

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	√ LCD 1244 (CCA 667) (REF) (27)

REASON FOR EO: ADDITIONAL PARTS REQD FOR FITH TEST

DESCRIPTION OF EO: FOR -35 4 REQD/MOD WAS 2 REQD/MOD

GAEC EO RELEASE: C ✓

MODEL	EFFECTIVITY: ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LFM 420-	2370-003	
	LDW 420-	2370 SERIAL #1	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
√		NOT	REQD	APPROVED BY				—	caw	WEaw		
				DATE	5/2/68			—	4/26/68	4/26/68	5/2/68	4-27-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~QC~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S UPR DECK FITH SHIELD SUPT	LDW 280-18312	B3

ISSUED BY LIAISON W. FRANK (7936) V.A. CHRISTINA SECTION VDI X1153 GROUP NO. 335 PL 25/29

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1436
CONTROL INFO NO. LDW280B7426

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18272	B1	SEE DWG
-18273	B1	
-18281	A4	
-18283	B1	
-18286	B2	
-18290	B1	
-18301	B1	
-18312	B4	
LDW280 -18313	B2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 54 PG 243, ECP U069, CCA1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: SAB 5-1-69; 5/6/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	5-5-69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1436

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18312	EO NO. B5
CONTROL INFO NO. LDW280B9558	

FOR -23 (REQD/MOD)

CHANGE NEXT ASSEMBLY FOR LM-10 (40) THRU LM-14(44)
LDW280-53501
SHOULD BE
LDW280-60501

FOR -15, -17, -19, -27, -29, -31, -33, -35

REMOVE EFF LM-10(40) THRU LM-14(44)
WAS LM-3(33) THRU LM-14(44) & SER #1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG58 (5)

REASON FOR EO: MODIFICATION FOR LARGER PROPELLANT TANKS

DESCRIPTION OF EO: FOR -15, -17, -19, -27, -29, -31, -33, -35 REMOVED LM-10(40) THRU LM-14(44) WAS LM-3(33) THRU LM-14(44) SER #1
FOR -23 N/A LDW 280-60501 WAS LDW280-53501

GAEC EO RELEASE: 12-29-69 12/31/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK	SCRAP ✓

APPROVED BY								
DATE	12-23-69			12/12/69	12/12/69		12/23/69	12/31/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S UPR DECK FITH SHIELD SUPT	LDW280-18312	B5

CDR 010970
ISSUED BY V.A. CHRISTINA SECTION VDI X87222 GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00 & 3.00				✓		EO A1 LCD 1244	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO	LM-3(33) THRU LM-15(45)	NOT	REQD	ROSARIO 8-12-67		
	2	1.00						EO A2 LCD 1244 Ⓡ	FOR -1 9 REQ PER MOD WAS 8						

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-66

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18313	A Ⓡ
SCALE NONE			SHEET 1.10

01

NAS 9-1100

LDW280-18313 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54587	LM-15(45)	9
		LM-14(44)	9
		LM-13(43)	9
		LM-12(42)	9
		LM-11(41)	9
		LM-10(40)	9
		LM-9(39)	9
		LM-8(38)	9
		LM-7(37)	9
		LM-6(36)	9
		LM-5(35)	9
LM	LDW280-54587	LM-4(34)	9
LM	LDW280-52587	LM-3(33)	9

PART NO. LDW 280-18313-1

GAEC SCH NO. 50-2

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO A

PRIM NO. 207 JK(004 MP-16A-9/8/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.010 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD-1244

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY ROSARIO 8-12-67

RELIABILITY

LAYOUT BY PLANTE

CHECKED BY D.FASS 8-17-67

GR LEADER 9/5

VEH DES INT 9/5

STRUCT 9-6-67

STRUCT 9-6-67

PROJ ENGR

REL GROUP 9/7/67

WEIGHTS

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE UPPER DECK
LINES SPT FITH

SIZE B

CODE IDENT NO. 26512

LDW280-18313 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		NAS1097-AD3	E	RIVET	STD PART						
1		NAS697-C08		NUT PLATE	STD PART						
1		LDW280-18313-11		BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.032X3X3	NONE	88	
		LDW280-18313-1	E	BRACKET ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18313
A

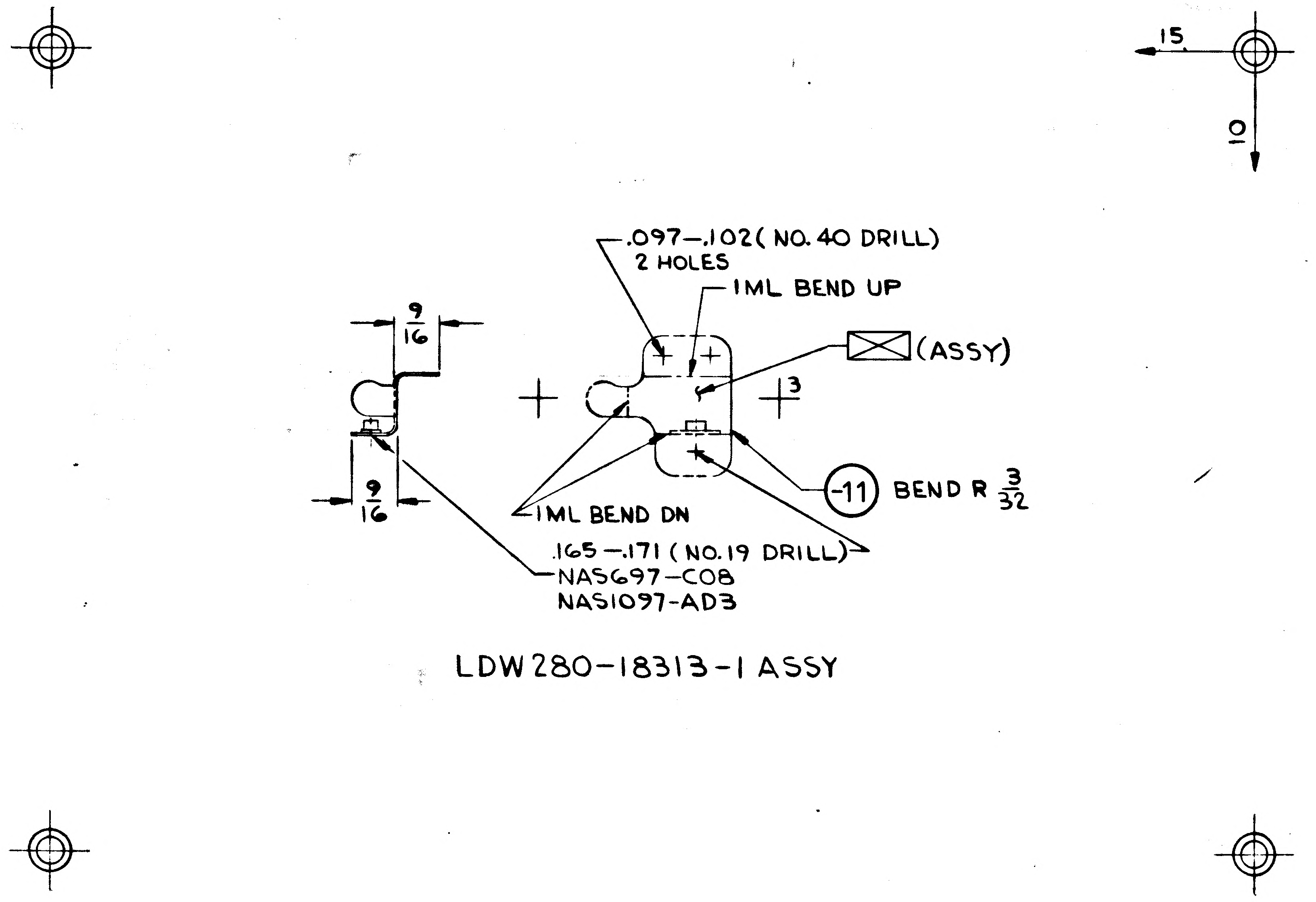
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

TRANS OK [illegible] 8/14/67



LDW280-18313-1 ASSY

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE EDGE DISTANCE IS 1½ FASTENER DIA FROM FASTENER ℄	✓
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18313	A

SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCTION

01 NAS 9-1100

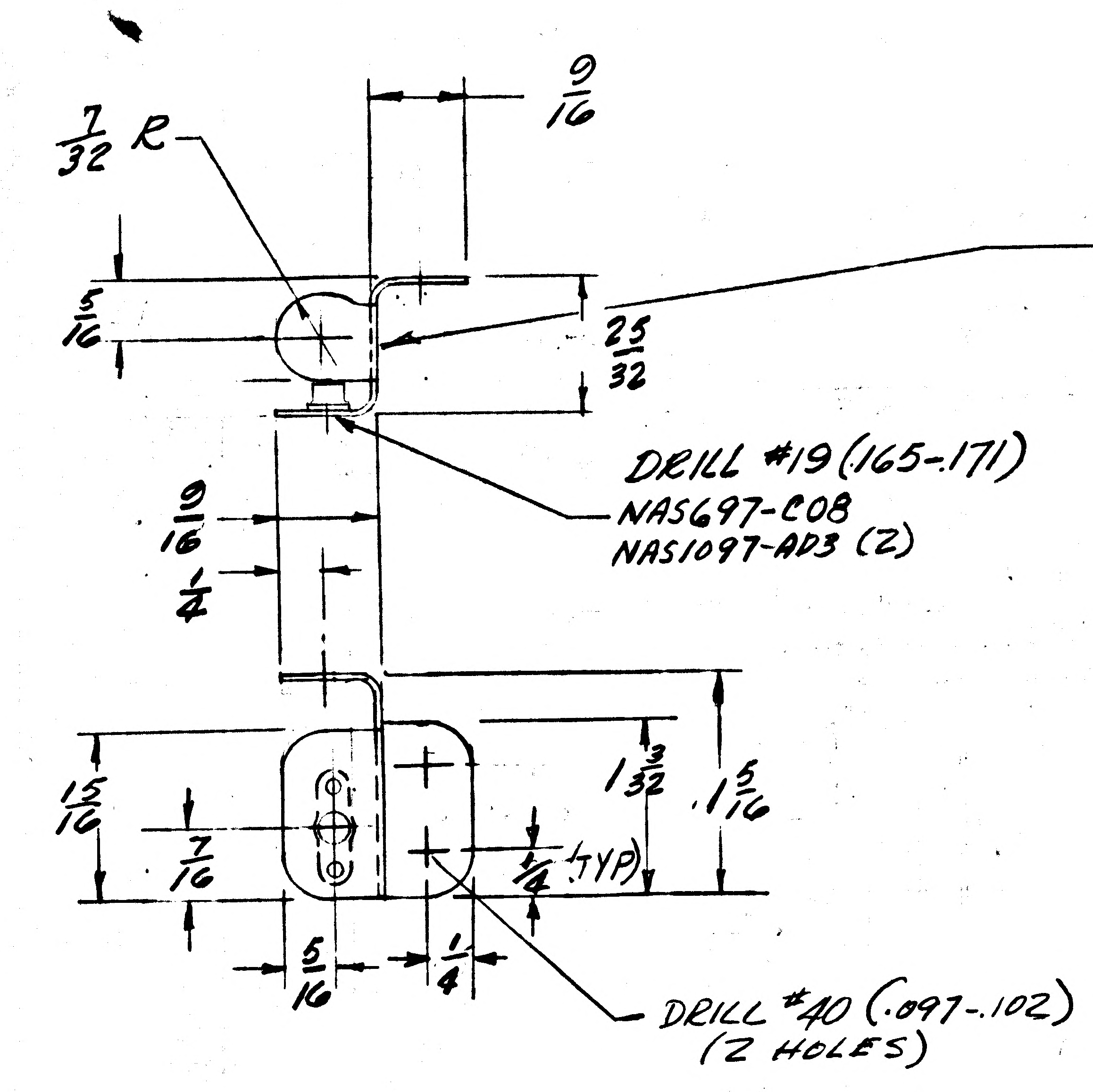
A **FITH** GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
ENG 32.2 REV 3-65

DWG. NO. LDW280-18313
EO NO. A1
CONTROL INFO NO. LDW280A-8245

CREATE: -11 DETAIL & -1 ASSY ICT = E

-1 EFF: N/A LDW280-52587 LM-3 (33)
N/A LDW280-54587 LM-4 (34) THRU LM-15 (45)

01
NAS 9-1100



(-1) BRACKET ASSY (8 REQ'D)
PER MODULE

(-11) BRACKET
MAT'L 2024-T3 AL ALY SH
QQ-A-250/4
.032 X 2½ X 2½
BR 3/32
FINISH #88 PER LSP-14-9030

DWG TOLERANCE
FRACTIONS ±1/32 DEC. ±.010 ANGLE ±1/2°

* NEW DWG - NO PARTS MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD-1244

REASON FOR EO: BRACKETS REQ'D FOR NITROGEN PURGE & ELEC. LINES TIE DOWN

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE
PARTS MADE PER EO

GAEC EO RELEASE: JK 7/31/67

MODEL: LM
EFFECTIVITY: PROCURING ACTIVITY NO.: — GAEC UNIT NO.: LM-3 (33) — SUB CONTR UNIT NO.: LM-15 (45)

DRAWING CHANGE REQD: * REVISE DWG RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

	APPROVED BY	DATE
VDI		7/28/67
SUPPORT		
RELIAB. GROUP		
GROUP LEADER	JRS	7/29/67
STRESS GROUP		7/27/67
LIAISON ENGRG		
PROJ ENGRG		7/28/67
~~GOVT~~	AC	7-29-67

PRIORITY: C
DR WING TITLE: BRACKET-D.S. UPPER DECK LINES SUPT FITH
DRAWING NO.: LDW280-18313
EO NO.: A1

ISSUED BY G. PLANTE 1153 7/29
SECTION VEH DES INT GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

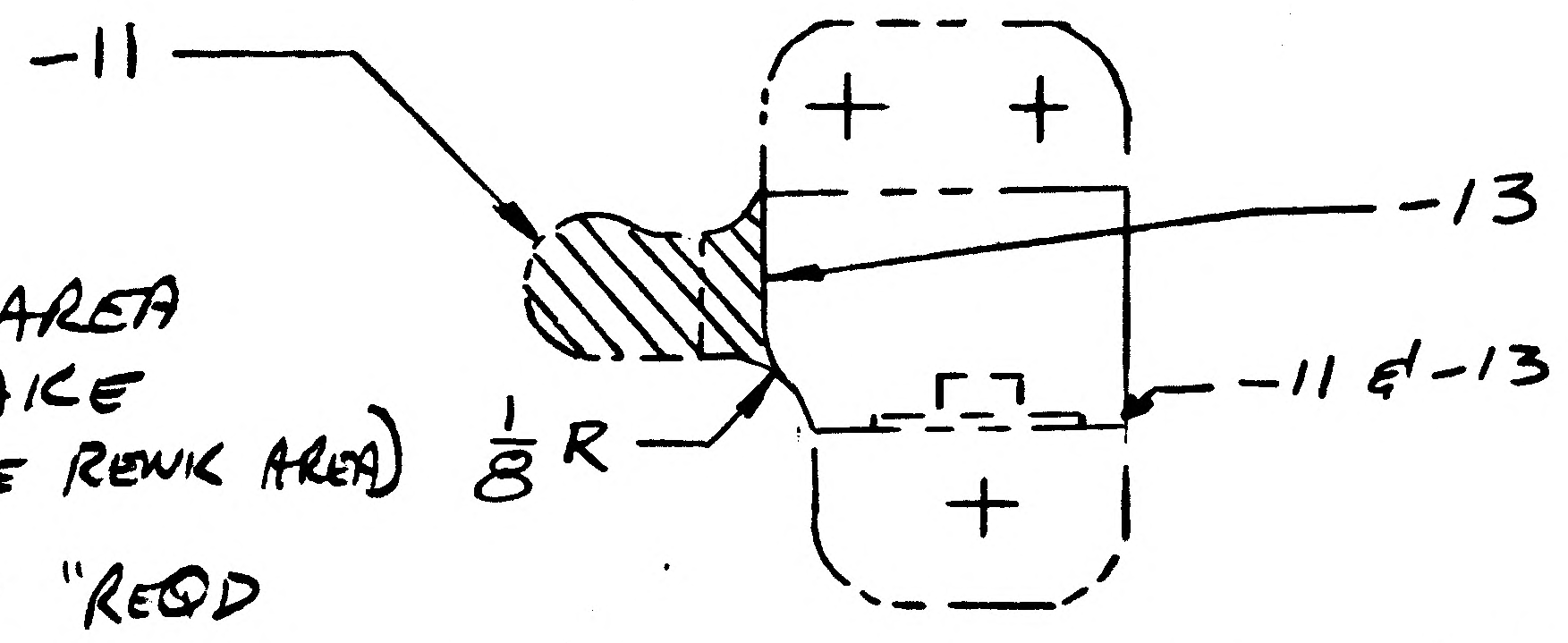
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18313
EO NO. B1
CONTROL INFO NO. LM-5-19616

NOTE: ON REWK OF
EXISTING PARTS
TRIM SHADED AREA
FROM -11 TO MAKE
-13. (BRUSH ALODINE REWK AREA)



ON -1 CHANGE "REQD
PER MODULE" FROM
9 TO 6 FOR N/A
LDW280-54587

LDW280-18313-3 (3 REQ'D-N/A LDW280-54587)
-3 IDENTICAL TO -1
EXCEPT -13 ON -3 ASSY
& -11 ON -1 ASSY

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD-1244 (REF)	(5)

REASON FOR EO: INTERFERENCE BETWEEN CLAMPS & FITH SHIELD

DESCRIPTION OF EO: ADDED -13 DETAIL & -3 ASSY ON -1 ASSY, "6" REQD/MOD WAS "9"

GAEC EO RELEASE: ② C VK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓						Z	JFJ	EWB		
				DATE	4/20				4-2-68	3/30/68	4/20	4/2/68
REVISE DWG	RECORD EO	REWORK	SCRAP	4-1-68	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COMP~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S UPPER DECK LINES SPT FITH	LDW280-18313	B1

ISSUED BY R LIAISON E V BERGEMAN SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1436
CONTROL INFO NO. LDW280B7426

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18272	B1	SEE DWG
-18273	B1	
-18281	A4	
-18283	B1	
-18286	B2	
-18290	B1	
-18301	B1	
-18312	B4	
LDW280 -18313	B2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG 243, ECP U069, CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: SAB 5-1-69; 5/6/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	5-5-69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1436

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1521
CONTROL INFO NO. LDW 280B 8109

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40 [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW 280-18272	SEE DWG	B 2
273		B 2
281		A 5
283		B 2
286		B 3
290		B 2
313		B 3
316		A 2
325		B 2
LDW280-18326	SEE DWG	B 2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 29 & 30 & 92 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69; JK 8/8/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

APPROVED BY					N		Bauman	
DATE	7-29-69			7/29/69	8/2/69		8-7-69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1521

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1699
CONTROL INFO NO. LDW280B8372

FOR THE NOTED DWGS & DASH NOS(*) REMOVE LM-10 (40) THRU LM-14 (44), LTA11 (23) REQMTS. N/A LDW 280-54587

DWG NO *	TITLE	CHANGE NO.
LDW 280-17904-15	SEE DWG	D4
-18313 -1 -3		B4
P 18337 -11 -12 -13 -14 LDW 280 P 18337 -15	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	LCR 3890 PKG 78 PG 3&4 (5)

REASON FOR EO: REDESIGN OF UPPER DECK BRACKET FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR DASH * REMOVED LM-10 (40) THRU LM-14 (44) & LTA-11 (23)

GAEC EO RELEASE: 10-1-69 JK 10/1/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10 (40) - LM 14 (44),	
LM		LTA11 (23)	
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ✓ SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	9/29/69			9-29-69			10/1/69	10/1/69

PRIORITY:
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 1699

CDR 10-1-69
ISSUED BY T. COTTER / D. RAGAS X87222 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18316

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18316-21 & -25		GAEC SCH NO.	
LM	LM280-54587	LM-15 (45)	2 EA
		LM-14 (44)	2 EA
		LM-13 (43)	2 EA
		LM-12 (42)	2 EA
		LM-11 (41)	2 EA
		LM-10 (40)	2 EA
		LM-9 (39)	2 EA
		LM-8 (38)	2 EA
		LM-7 (37)	2 EA
		LM-6 (36)	2 EA
		LM-5 (35)	2 EA
	LDW280-54587	LM-4 (34)	2 EA
LM	LDW280-52587	LM-3 (33)	2 EA

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18316-11, -13, -15, -16, -17, -19 & 23		GAEC SCH NO.	
LM	LDW280-54587	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
	LDW280-54587	LM-4 (34)	1 EA
LM	LDW280-52587	LM-3 (33)	1 EA

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00		
REV						
SHEET						
REV						
SHEET						
REV						

LAST SECT LTR USED
LAST DASH NO. USED -25
GRUMMAN REL INFO
PRIM NO. X(001)
207 MF-16 :8/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ±1/2°
P ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD2721/CCA959

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY V. NARONIS 5/2/68
LAYOUT BY E. MORRIS EM
CHECKED BY D. FASS 5-6-68
GR LEADER 5-3-68
VEH DES INT 5/6/68
STRUCTURES WJH 5/6/68
STRUCTURES
WEIGHTS
PROJ ENGR 5/6/68
REL GROUP 5/8/68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - BURST DISC
VALVE

SIZE B
CODE IDENT NO. 26512
LDW280-18316
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18316-25	E	DOUBLER	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 x 2 x 3	NONE	88	
								-23	E	CLIP				.040 x 3 x 3			
								-21	E	STRAP				.040 x 2 x 3			
								-19	E	CHANNEL				.040 x 3 x 10			
								-17		CHANNEL				.040 x 3 x 12			
								-16		BBACKET				.040 x 3 x 4			
								-15		BRACKET				.040 x 3 x 4			
								-13		CHANNEL				.040 x 3 x 11			
								LDW280-18316-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 x 3 x 13	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18316
SCALE NONE
SHEET 2.00

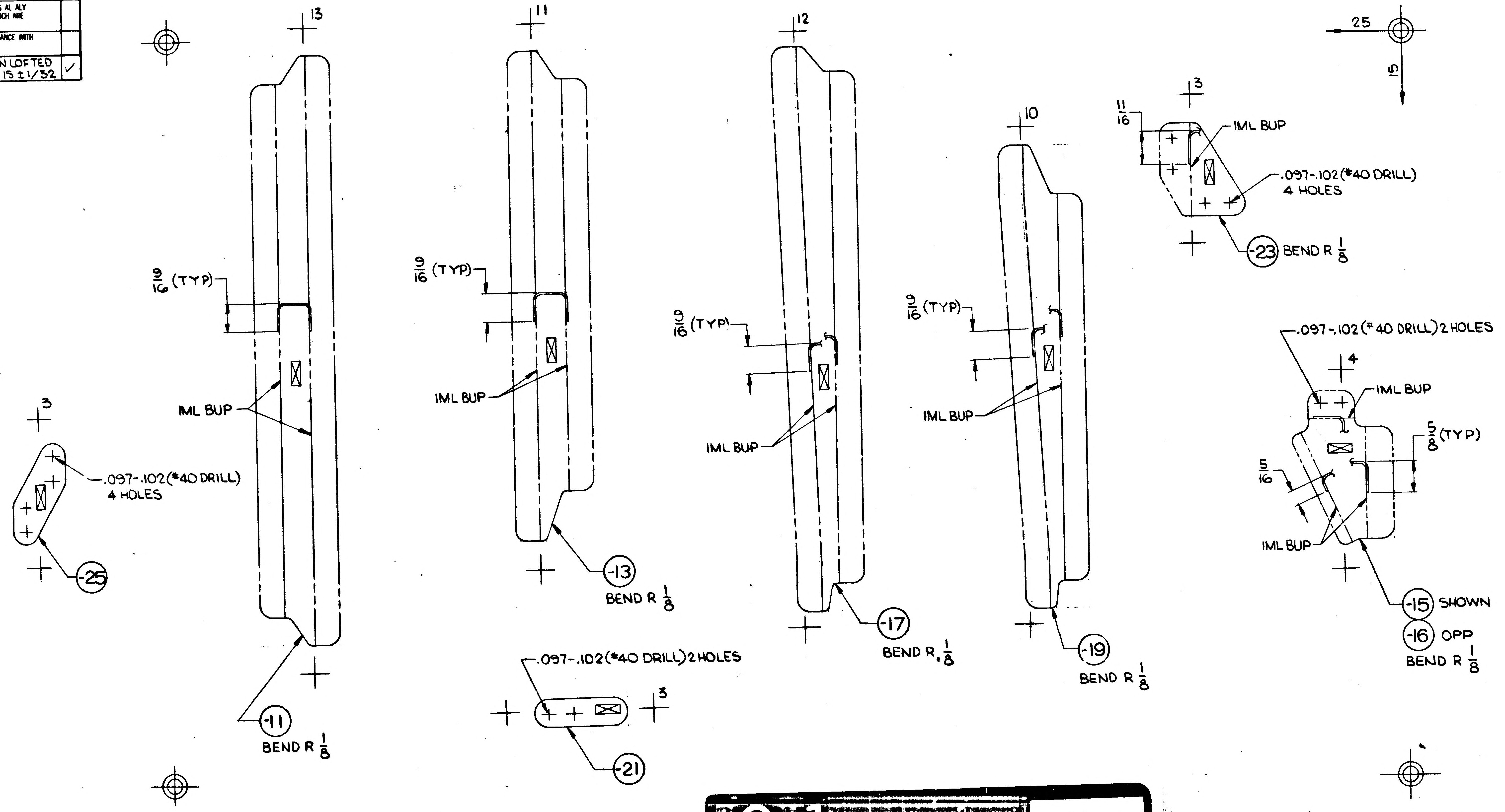
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.



13
9/16 (TYP)
IML BUP
-11
BEND R 1/8
11
9/16 (TYP)
IML BUP
-13
BEND R 1/8
12
9/16 (TYP)
IML BUP
-17
BEND R 1/8
10
9/16 (TYP)
IML BUP
-19
BEND R 1/8
3
.097-.102 (#40 DRILL) 4 HOLES
-25
.097-.102 (#40 DRILL) 2 HOLES
3
-21
25
15
3
11/16
IML BUP
.097-.102 (#40 DRILL) 4 HOLES
-23 BEND R 1/8
.097-.102 (#40 DRILL) 2 HOLES
4
IML BUP
5/8 (TYP)
5/16
IML BUP
-15 SHOWN
-16 OPP
BEND R 1/8

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18316
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

LDW280-18316

G 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1340
CONTROL INFO NO. LDW280B7427

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18316 ✓	A1	SEE DWG
-18317	B1	↑
-18324	A3	
-18325	B1	
-18326	B1	
-18330	B1	
-18332	B2	
-18340	A5	
-18342	A4	↓
LDW280-18343	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: VK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1340

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

LEO 280		EO NO. 1521
CONTROL INFO NO. LDW280B 8109		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40 [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING NO *	TITLE	CHANGE NO
LDW280-18272	SEE DWG	B2
273		B2
281		A5
283		B2
286		B3
290		B2
313		B3
316		A2
325		B2
LDW280-18326	SEE DWG	B2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 29 & 30 & 92 (5)

REASON FOR EO
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE
8-6-69
JK 8/8/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP	

APPROVED BY								
					N		Bauman	
DATE	7-29-69			7/29/69	8/2/69			8-7-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1521

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18316
EO NO. A3
CONTROL INFO NO. LDW280 B 7921

FOR -17 & -19: IN MOD BLK
REMOVE LTA11(23), LM-10 (40) THRU LM-14 (44) REQMTS N/A LDW280-54587
FOR -11, -13, -15, -16, -21 (2), -23, & -25 (2):
N/A LDW280-60587 WAS LDW280-54587 FOR LM-10 (40)
THRU LM-14 (44) & LTA11 (23); & ADD LTA 3DR/1 (460),
REQMTS QUANT & N/A SAME AS LM-10 (40)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		LCR 3890 PKG 78 PG 1 (5)

REASON FOR EO
REDESIGN OF UPPER DECK BRACKET FOR EXTENDED TANKS

DESCRIPTION OF EO
ON -17 & -19 IN
REMOVE LM 10 (40) - LM 14 (44) LTA 11 (23) EFF
ON -11, -13, -15, -16, -21, -23, -25 N/A LDW280-60587 WAS LDW280-54587 AND ADDED LTA 3DR/1 (460) REQMTS

GAEC EO RELEASE: JK 10/2/69

EFFECTIVITY

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) - LM-14 (44),	
LM		LTA11 (23) &	
LM		LTA3DR/1 (460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	✓

APPROVED BY					W/H			
DATE	9/29/69			9-29-69	2-6		10/1/69	10/2/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S - UP DK - HE, H_2O LINES SUPT	LDW280-18316	A3

CDR 101769
ISSUED BY T. COTTER / D. RAGAS x 87222 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

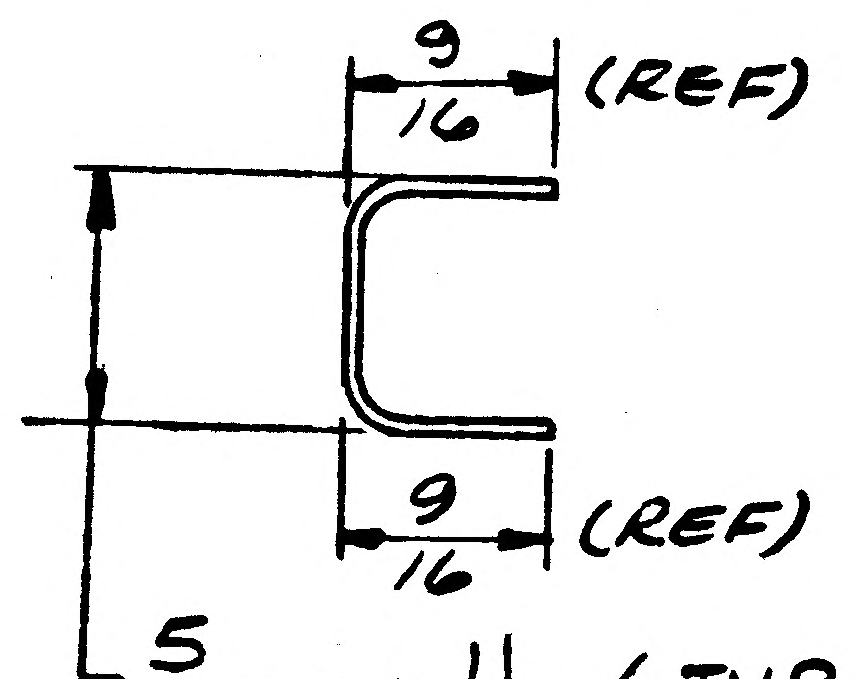
DWG. NO. LDW280-18316 | EO NO. A4

CONTROL INFO NO. LM-2-5839

IN FLD, B/M, & M/B

CREATE: LDW280-18316-27 IDENTICAL TO LDW280-18316-11 EXCEPT AS NOTED

& LDW280-18316-29 IDENTICAL TO LDW280-18316-13 EXCEPT AS NOTED



RESTRICT -11, & -13 TO LM-3(33) THRU LM-9(39).

$\frac{5}{8}$ WAS $\frac{11}{16}$ (TYP FOR -27 & -29)

N/A LDW280-60587

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG #02

REASON FOR EO: TO PROVIDE CLEARANCE FOR FLUID LINES.

DESCRIPTION OF EO: ADDED -27 & -29 RESTRICTED -11 & -13 TO LM-3(33) THRU LM-9(39) BY REM LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3DR/1(460)

R GAEC EO RELEASE (2) NB VK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
		LM-14(44)	LTA 3DR/1(460)
		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP -11 -13

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE 1-7-70	VDI 1-12-70			1/9/70	KC 1/7/70	1-7-70	1/14/70	1/7/70

PRIORITY: C

DRAWING TITLE: CHANNEL D/S BURST DISC VALVE

DRAWING NO. LDW280-18316 | EO NO. A4

ISSUED BY V.P.E. S. GRECO X3604 SECTION V.D.I GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1844
CONTROL INFO NO. LDW280 89969

FOR DWGS LISTED BELOW DELETE LTA-3DR/1 & LTA-11(23) EFF.
FROM DASH NO.S * WITH N/A LDW280-60587.

DWG. NO. & DASA NO'S.	CHANGE NO.	DWG. NOMENCLATURE	N/A
✓ LDW 280-17959-11-1,-13,-15	B6	SEE DNG.	LDW280-60587
✓ LDW280 -17958-21,-13	B8	↑	↑
✓ LDW280 -17877-19,-17	B7		
✓ LDW280 -17750-11,-13,-15	C1		
✓ LDW280 -17422-13	B8		
✓ LDW280 -18316 -13,-16,-21,-23,-25,-27,-29	A5		
LDW280 -18065-43	E4		
LDW290 M17603-1	A6		
LDW280 M 17291-1	B5	↓	↓
LDW280 M 17290 -1	A6	SEE DNG.	LDW280-60587

* APPLICABLE DASH NO.S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 78 (5)

REASON FOR EO
DETAIL PARTS NO LONGER REQ'D FOR LTA-11 (23) & LTA-3DR/1 (460)
UPPER DECK PLUMBING NOT ON TEST ARTICLES

DESCRIPTION OF EO
FOR DWG & DASH NOS * DELETED LTA-3DR/1(460) & LTA-11(23) EFF.

GAEC EO RELEASE VK 2/17/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1 (460)	
		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	2-16-70			2/16/70	2/16/70		2/16/70	2/17/70

PRIORITY C
DRAWING TITLE NOTED
DRAWING NO. LEO 280
EO NO. 1844

021970
ISSUED BY A. GROSS/D. RAGAS X87222 SECTION V.D.I GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-18317 A

LFM420-2370-003			
LDW420-2370	LDW420-2386	#1	2 EA
LM	LDW280·23540	LM-15(45)	1 EA
↑	↑	LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
↓	↓	LM-4(34)	1 EA
LM	LDW280-23540	LM-3(33)	1 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18317-15 & -16		GAEC SCH NO.	

LFM-420-2370-003			
LDW420-2370	LDW-420-2386	#1	4
LM	LDW280-23540	LM-15(45)	2
↑	↑	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
↓	↓	LM-4(34)	2
LM	LDW280-23540	LM-3(33)	2
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18317-19		GAEC SCH NO. 52	

LM	LDW280-23540	LM-15(45)	1EA
↑	↑	LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
		LM-6(36)	1EA
		LM-5(35)	1EA
↓	↓	LM-4(34)	1EA
LM	LDW280-23540	LM-3(33)	1EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18317-17 & -18		GAEC SCH NO. 52	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET										
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL INFO

PRIM NO.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO.

DRAWN BY

LAYOUT BY

CHECKED BY

PROJ ENGR

REL GROUP

LINE ITEM

DOCUMENTATION TYPE

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18317	A
SCALE	NONE	SHEET 1.01 OF	

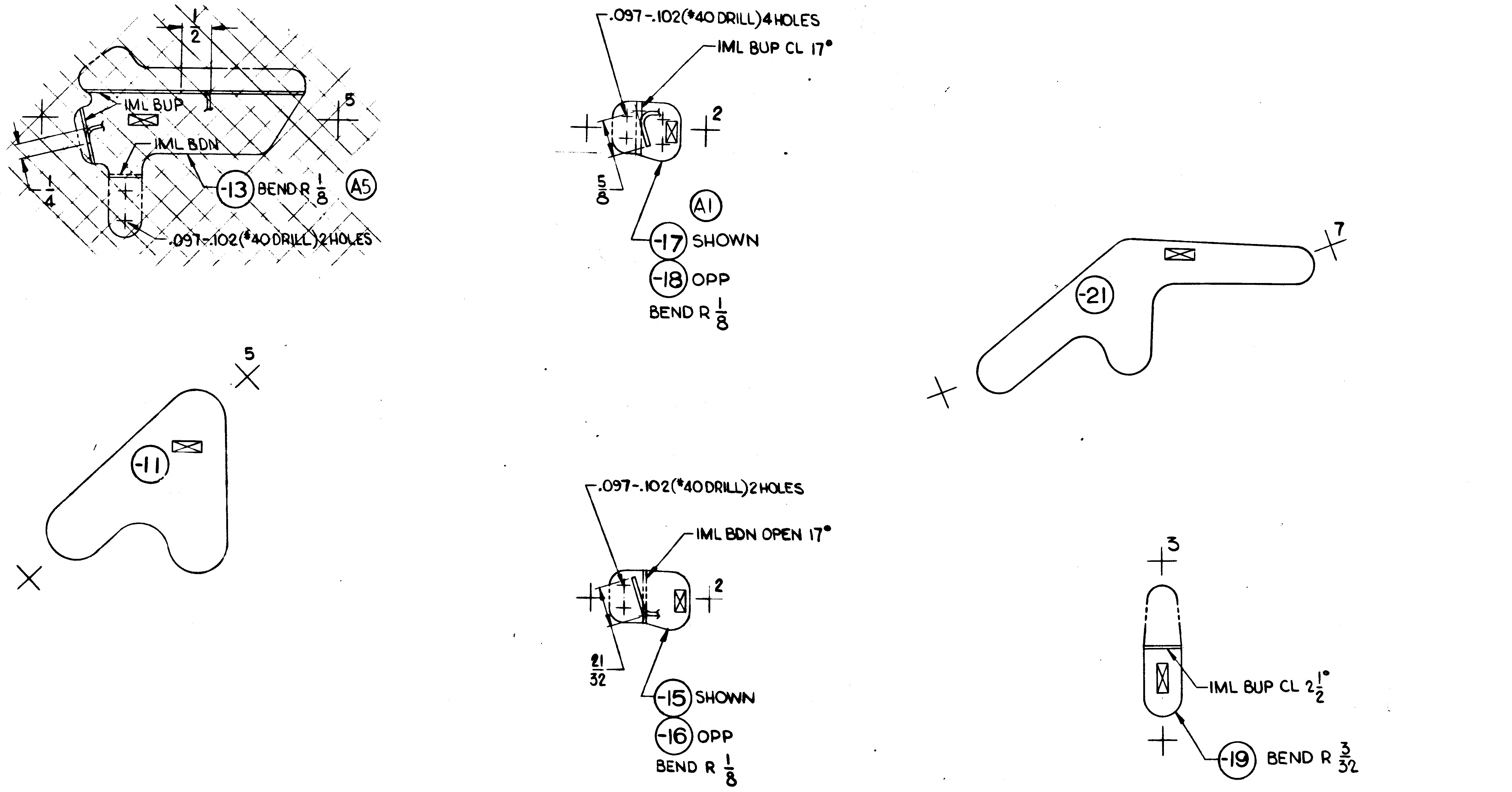
ENG 77.1 12-65

01

NAS 9-1100

TRAM OK [illegible]

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.


25
20
1/2
5
IML BUP
IML BDN
1/4
-13 BEND R 1/8
A5
.097-.102(#40 DRILL)2 HOLES
5
-11
.097-.102(#40 DRILL)4 HOLES
IML BUP CL 17°
2
5/8
A1
-17 SHOWN
-18 OPP
BEND R 1/8
7
-21
.097-.102(#40 DRILL)2 HOLES
IML BDN OPEN 17°
2
21/32
-15 SHOWN
-16 OPP
BEND R 1/8
3
IML BUP CL 2 1/2°
-19 BEND R 3/32

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⌧ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 ▽ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 ▽ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18317	A
	SCALE FULL		SHEET 3.00	

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.10&3.00				✓		EO A1 LCD1244	FOR-17&-18, IN FLD/DWG, RELOCATED #40 DRILL (2 PLACES) ADDED SH 1.10	LM-3 THRU LM-15 SER#1	✓		TWEEDY 11-1-68 E.C.G.		
	2	1.00		LFM420-2370-003		✓		EO A2 LCD 1244	FOR-21 REPLACED N/A LDW280-53502 BY N/A LDW280-53503		NOT	REQD			
	3	1.00, 1.01		LFM420-2370-003 S		✓		EO A3 LCD1244 CCA 667	REMOVED-17&-18 (1EA REQD/MOD), -11&-13 (2EA REQD WAS 3REQD), -21 (4 REQD WAS 6REQD), -19 (4 WAS 2), -15 &-16 (2EA WAS 1 EA), N/A LDW420-2386 WAS LDW280-23540	SER#1		✓			
	4	1.01		LFM420-2370-003		✓		EO A4 LCD1244 CCA 667	REFERENCE EOA1: REVISED EFFECTIVITY, DELETED LDW 420-2370 SER#1, REFERENCE EO A3: REMOVED "REMOVED -17&-18", FOR-15-16&-19 ADDED LDW420-2370 SER#1 REQMT'S		✓				
	5	1.00 2.00 3.00				✓		EO A5 LCD1244 CCA667	REMOVED-13	LM-3 THRU LM-15		✓			
	6	1.00		LFM420-2370-003		✓		EO A6 LCD 1244 CCA 667	REF EOA5: LM-3(33) THRU LM-15(45) & LFM420-2370-003 LDW420-2370 SER#1 WAS LM-3(33) THRU LM-15(45)	SER#1 LM-3 THRU LM-15		✓			

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18317	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-66

01

NAS 9-1100

LDW280-18317 A

LFM

LFM420-2370-003			
LDW420-2370	LDW280-53503	SER#1	4
LM		LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
		LM-4(34)	2
LM	LDW280-53503	LM-3(33)	2
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18317-21		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO. 52	

LFM420-2370-003			
LDW420-2370	LDW280-53502	SER#1	2
LM		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
LM	LDW280-53502	LM-3(33)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18317-11		GAEC SCH NO. 52	

WORK PKG FUNCTION NO. 111 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	1.10	2.00	3.00				
REV	A	A	A	A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL^C INFO A	
LAST DASH NO. USED	-21	PRIM NO. 207	JK(001) ME-3A 1/7/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 1244

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	V. NARONIS 8/29/67	RELIABILITY	
LAYOUT BY	J. FORKER	GSE	J. Attard 9/13/67
CHECKED BY	J. Bell 9/8/67		
GP.LEADER	9/1/67		
VEH.DES.INT.	9/1/67		
STRUCTURES	9/11/67	PROJ ENGR	9/1/67
STRUCTURES	9/12/67	REL GROUP	Botti 9-13-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE - SHIELD SPLICE

SIZE	CODE IDENT NO.		
B	26512	LDW280-18317	A
SCALE	NONE	SHEET 1.00 OF 5	

77.1 12-65

CDR= 7/8/67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18317-21	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.040×3×7	NONE	88	
		-19		CLIP			7075	.050×2×3	T6	88	
		-18						.062×2×2	T6	88	
		-17						.062×2×2	T6	88	
		-16						.062×2×2	T6	88	
		-15		CLIP			7075	.062×2×2	T6	88	
		LDW280-18317-11	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.062×3×5	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18317	A

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100

G 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1340
CONTROL INFO NO. LDW280B7427

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18316 ✓	A1	SEE DWG
-18317 ✓	B1	
-18324	A3	
-18325	B1	
-18326	B1	
-18330	B1	
-18332	B2	
-18340	A5	
-18342	A4	
LDW280-18343	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 3 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: JK 4/16/9

MODEL	PROCURING ACTIVITY NO	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GSMB
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1340

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18 317 | EO NO. B3

CONTROL INFO NO. LDW 280B 9556

FOR -11 (1REQD/ MOD)

REMOVE EFF. LM-10 (40) THRU LM-14 (44)
WAS LM-3(33) THRU LM-14(44) & SER#1

FOR-21 (2REQD/ MOD)

CHANGE NEXT ASSEMBLY FOR LM-10(40) THRU LM-14(44)
LDW280-53503
SHOULD BE
LDW 280-60501

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG58

REASON FOR EO: MODIFICATION FOR LARGER PROPELLANT TANKS

DESCRIPTION OF EO:
FOR -21
N/A LDW280-60501 WAS LDW280-53503
FOR-11 REMOVED EFF LM-10(40) THRU LM-14(44)
WAS LM-3(33) THRU LM-14(44) & SER#1

GAEC EO RELEASE: (5) JK 12/31

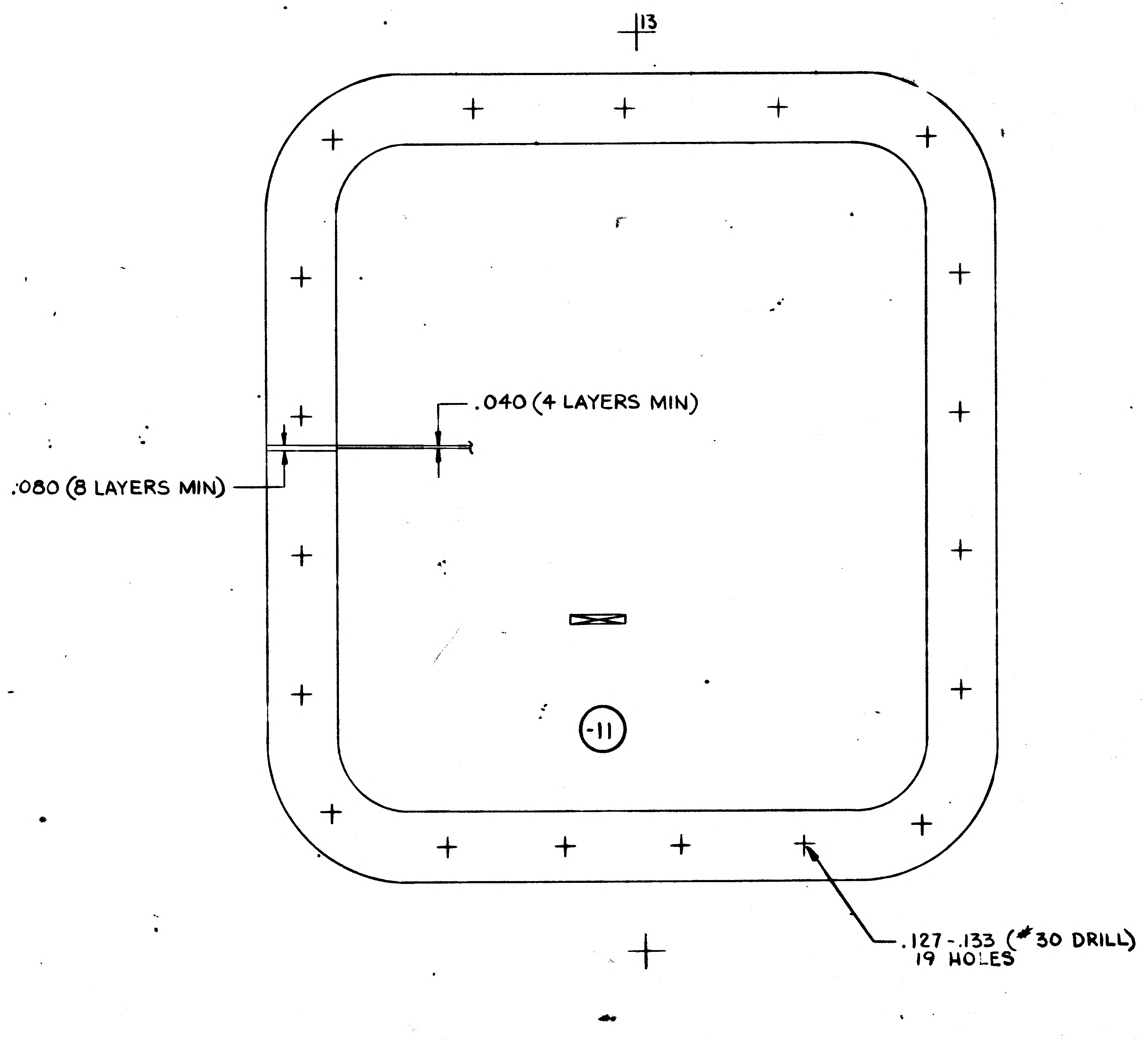
MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

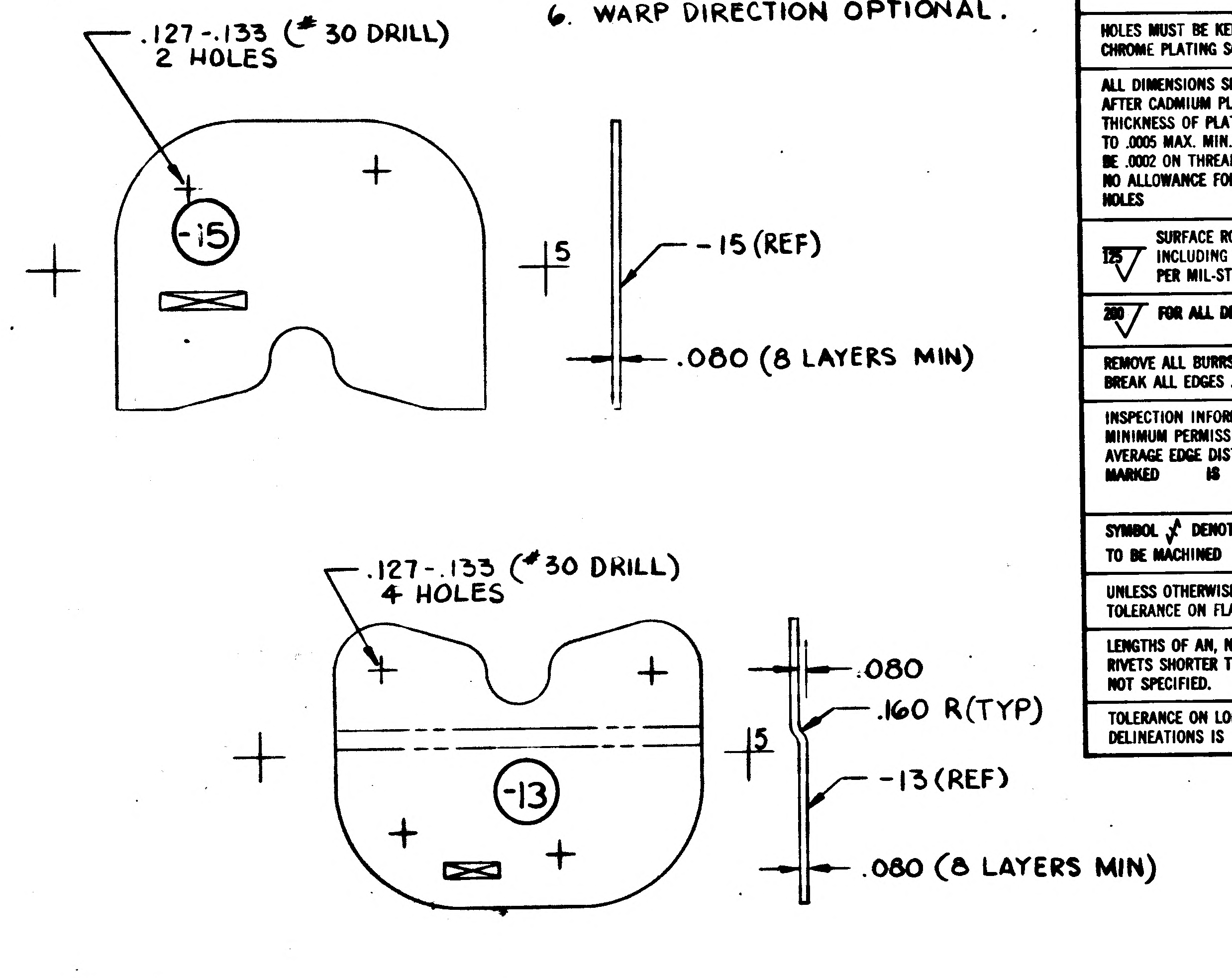
DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	12-23-69			12/22/69	12/23/69		12/23/69	12/30/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE D/S SHIELD SPLICE	LDW280-18317	B3

CDR 010970
ISSUED BY V.A. CHRISTINA SECTION VDI X87222 GROUP NO. 335 PL 25

Q1
NAS 9-1100





NOTES :

1. NO TOOLING HOLES PERMITTED IN PARTS
2. GLASS REINFORCED PLASTIC TO BE MANUFACTURED IN ACCORDANCE WITH LSP 14-11101 USING POLYESTER RESIN LAMINAC 4146"A" WITH 0.7% TO 1.0% LUCIDOL DDM AND 0.05% TO 0.1% COBOLT NAPTHANATE (6%). FIBERGLASS CLOTH TO BE STYLE 181 OR 181/150 GARAN OR VOLAN "A" FINISH. MINIMUM FINAL CURE TEMPERATURE AND TIME SHALL BE 180°F FOR 1 HOUR FOLLOWED BY 250°F FOR 2 HOURS.
3. TEST PANEL AND DESTRUCTIVE TEST OF PART NOT REQUIRED.
4. THICKNESS FOR -11, -13 & -15 (NO. OF LAYERS AS NOTED)
5. EXTERIOR SURFACE TO BE SUFFICIENTLY PIT FREE TO INSURE SATISFACTORY FINAL FINISH.
6. WARP DIRECTION OPTIONAL.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LM	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
MODEL OR END ITEM	SIZE D	CODE IDENT NO. 26512	LDW280P18319
	SCALE FULL		SHEET 3.00

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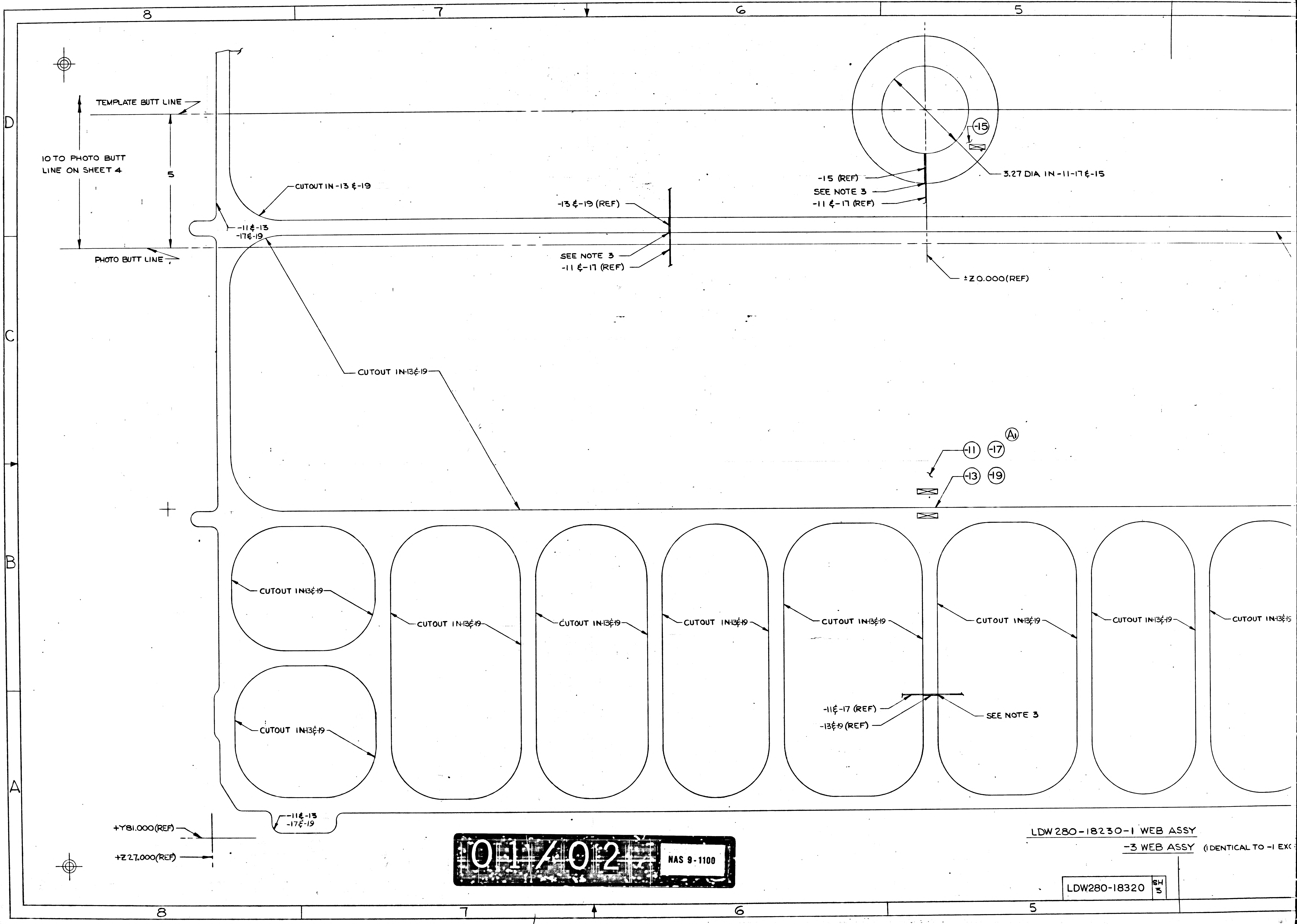
NAS 9-1100


8
7
6
5
D
C
B
A
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
PHOTO BUTT LINE
CUTOUT IN -13 & -19
-11 & -13
-17 & -19
-13 & -19 (REF)
SEE NOTE 3
-11 & -17 (REF)
-15
-15 (REF)
SEE NOTE 3
-11 & -17 (REF)
3.27 DIA IN -11-17 & -15
±Z0.000(REF)
CUTOUT IN-13 & -19
A1
-11
-17
-13
-19
CUTOUT IN-13 & -19
CUTOUT IN-13 & -19
CUTOUT IN-13 & -19
CUTOUT IN-13 & -19
CUTOUT IN-13 & -19
CUTOUT IN-13 & -19
CUTOUT IN-13 & -19
CUTOUT IN-13 & -19
CUTOUT IN-13 & -19
CUTOUT IN-13 & -15
-11 & -17 (REF)
-13 & -19 (REF)
SEE NOTE 3
-11 & -13
-17 & -19
+Y81.000(REF)
+Z27.000(REF)

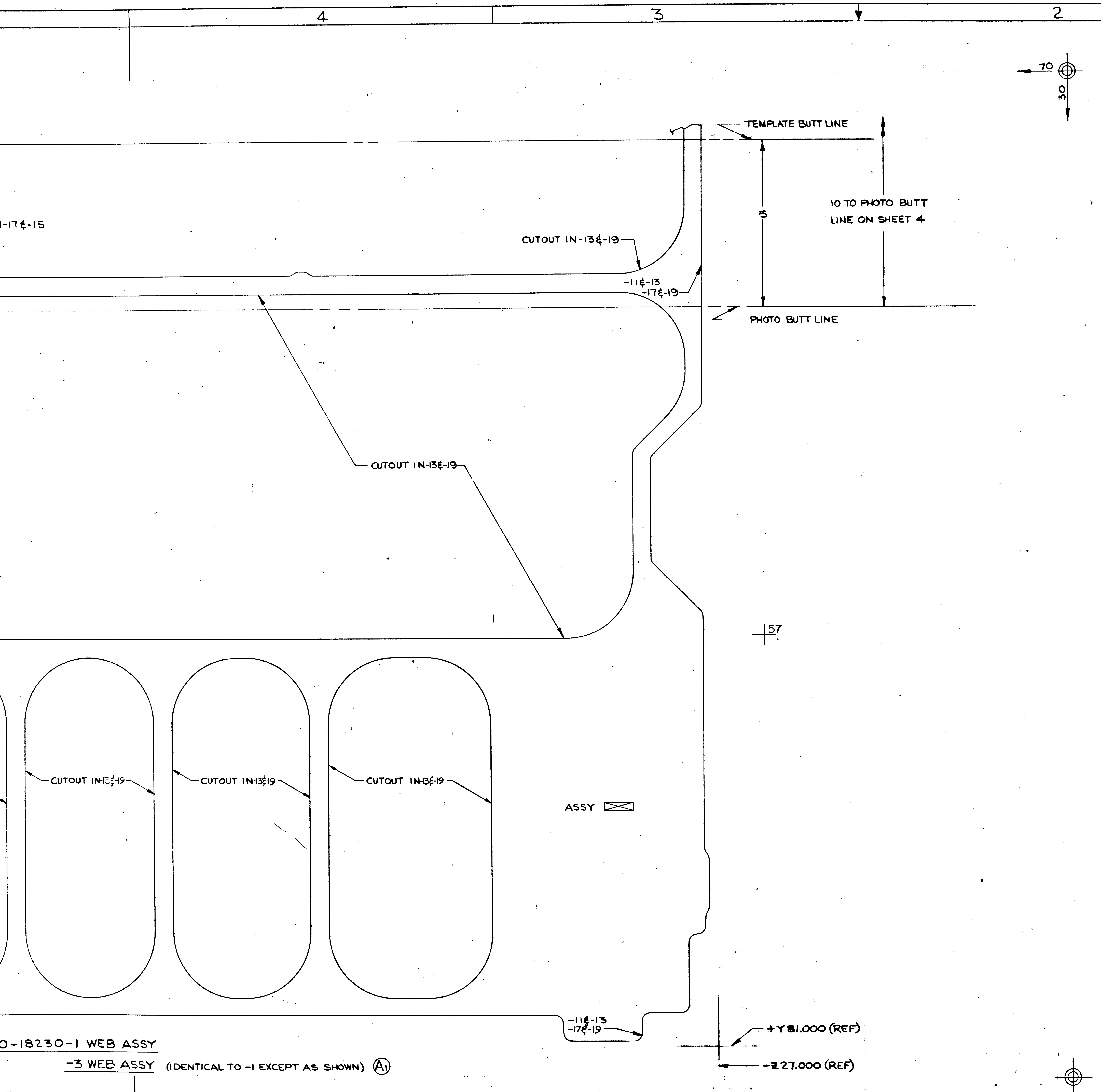
01/02

NAS 9-1100

LDW280-18230-1 WEB ASSY

-3 WEB ASSY (IDENTICAL TO -1 EXC

LDW280-18320 SH 3



0-18230-1 WEB ASSY

-3 WEB ASSY (IDENTICAL TO -1 EXCEPT AS SHOWN) Ⓐ1

LDW280-18320 SH 3

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.

2. a) DEOXIDE IN ACCORDANCE WITH LSP14-7020 EXCEPT THAT IN PARA 3.3 ONLY THE "HEAVY-DUTY ALUMINUM DE-OXIDIZER SOLUTION" (NITRIC ACID-SODIUM SULFATE) SHALL BE USED AND THE TOTAL IMMERSION TIME SHALL BE AS SPECIFIED IN d) BELOW.
   b) CHROMIC ACID ANODIZE IN ACCORDANCE WITH LSP-14-9030 EXCEPT THAT REQTS CONSERNING ANODIC FILM WGT AND/OR CORROSION RESISTANCE SHALL NOT APPLY. THE TOTAL ANODIZING CYCLE TIME, INCLUDING VOLTAGE RUN-UP SHALL BE AS SPECIFIED IN d) BELOW.
   c) EMITTANCE MEASUREMENTS SHALL BE TAKEN ON BOTH SURFACES OF A FINISHED PART AND WITH A GIER-DUNKEL PORTABLE EMISSOMETER. THE SURFACE OF THE FINISHED PART SHALL HAVE AN AVERAGE TOTAL HEMISPHERICAL EMITTANCE OF 0.40 ± 0.10 @ 100°F.
   d) PARTS WHOSE ENTIRE SURFACE AREA IS IN THE "AS ROLLED" COND SHALL BE DEOXIDIZED FOR 15 ± 1 MINUTES & THEN CHROMIC ACID ANODIZED FOR 38 ± 1/2 MIN.
   PARTS THAT HAVE BEEN ANODIZED & POSSESS SURFACE EMITTANCE PROPERTIES OUTSIDE THE REQ'D TOLERANCE MAY BE REWORKED BY DEOXIDIZING FOR 35-45 MIN & THEN CHROMIC ACID ANODIZING FOR 38 ± 1/2 MIN.

3. BOND -11, -13, -15 & -17, -19, -15 WITH FM1000 PER LPC 280-36.
4. STOCK FOR -11-13-15-17 & -19 TO BE HANDSELECTED OR PURCHASED TO MEET THICKNESS TOLERANCE OF .020 ±.001.
5. AT EDGE OF BONDED DOUBLERS, FM1000 SQUEEZE-OUT MAY BE REMOVED, SUFFICIENT TO ALLOW THE APPLICATION OF A 1/8" MAXIMUM BEAD OF EC 2216. CURE EC2216 PER LSP14-22500.
6. ~~FINISH PER LPC280-13 PARA 4.5 4.5.1 4.6 4.7 15.0~~

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.0 SQ. FT.
PRINT TRIM LINE

LDW280-18320 B

02/02

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-18320	B
	SCALE FULL		SHEET 3.00	

R-26147

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K2

2FR

HG-8P

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQD	AS REQD	SEE NOTE 3	E		ADHESIVE							
1		LDW280-18320-19			DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	NOTE 4 44x56	NONE	NONE	
1		LDW280-18320-17			WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	NOTE 4 44x56	NONE	NONE	
1	1	LDW280-18320-15			DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	NOTE 4 6X6	NONE	NONE	
	1	-13			DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	NOTE 4 55X56	NONE	NONE	
	1	LDW280-18320-11			WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	NOTE 4 55X56	NONE	NONE	
		LDW280-13320-3			WEB ASSY (BOUDED)					NOTE 3	NOTE 2	5A
		LDW280-18320-1	E		WEB ASSY (BONDED)					NOTE 3	NOTE 2	5A

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18320	A

4

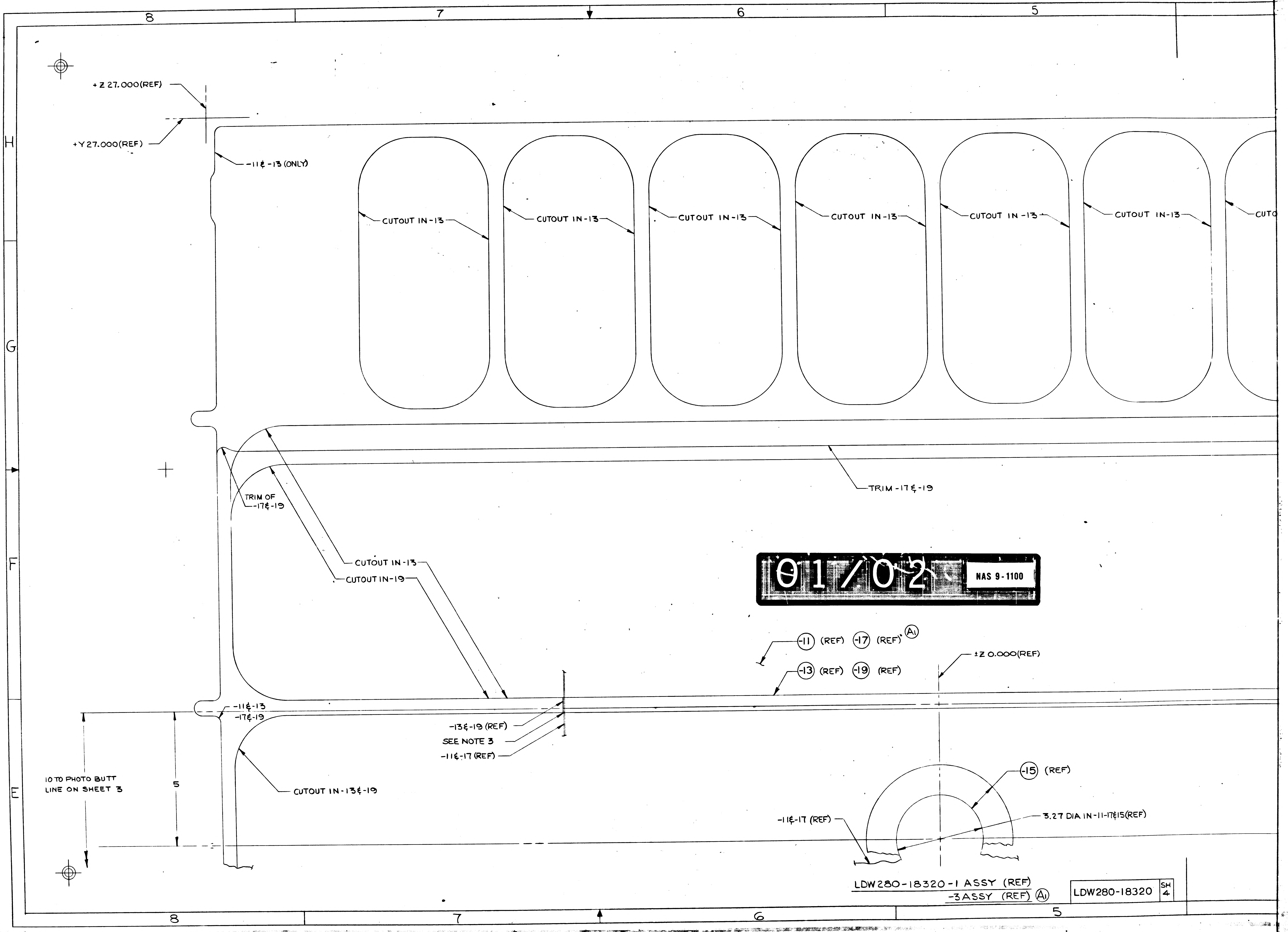
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

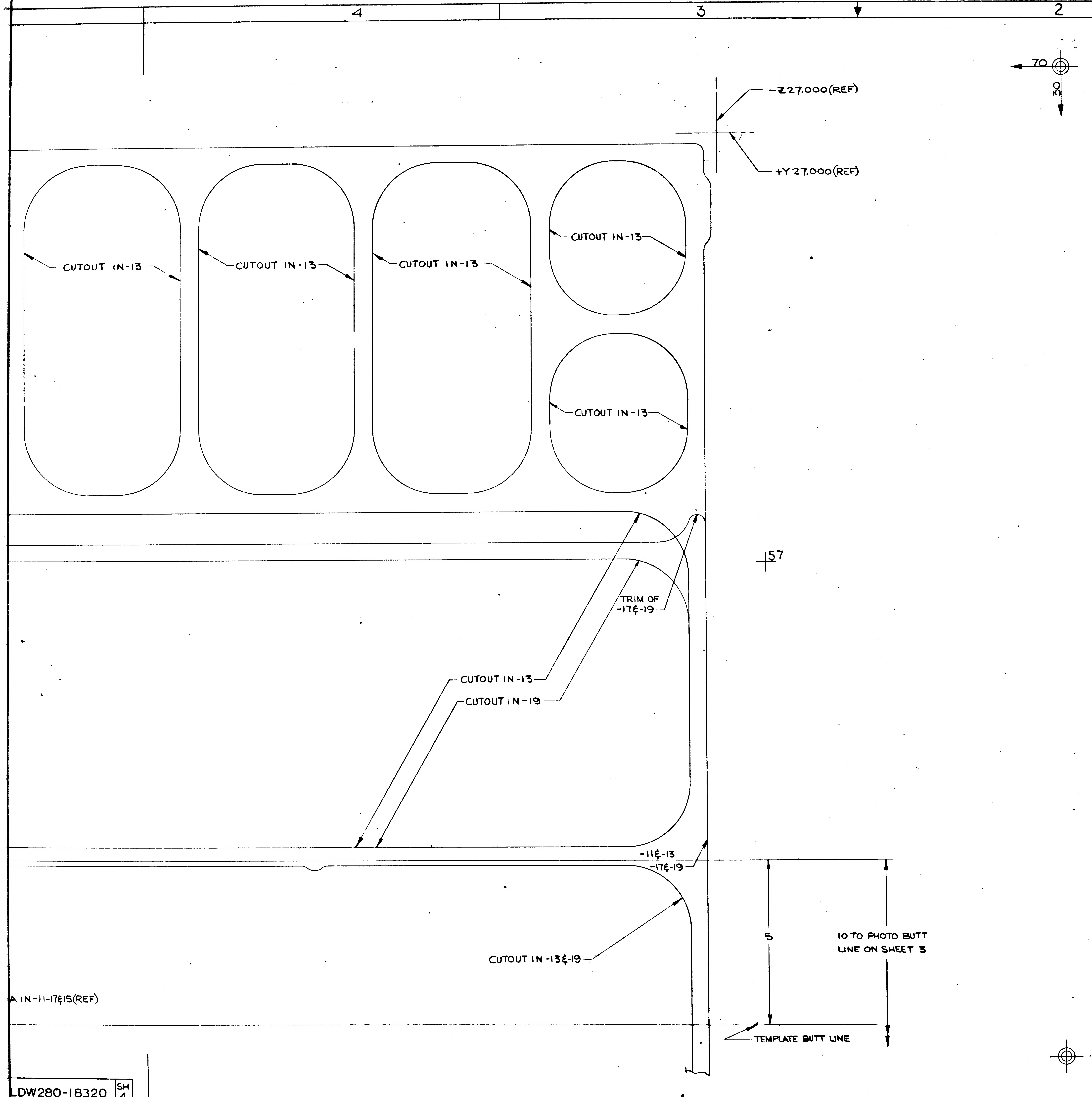
01

NAS 9-1100


8
7
6
5
H
G
F
E
+Z 27.000(REF)
+Y 27.000(REF)
-11 & -13 (ONLY)
CUTOUT IN-13
CUTOUT IN-13
CUTOUT IN-13
CUTOUT IN-13
CUTOUT IN-13
CUTOUT IN-13
CUTO
TRIM -17 & -19
TRIM OF -17 & -19
CUTOUT IN-13
CUTOUT IN-19
-11 (REF)
-17 (REF)
A1
-13 (REF)
-19 (REF)
±Z 0.000(REF)
-11 & -13
-17 & -19
-13 & -19 (REF)
SEE NOTE 3
-11 & -17 (REF)
10 TO PHOTO BUTT LINE ON SHEET 3
5
CUTOUT IN-13 & -19
-15 (REF)
3.27 DIA IN-11-17 & 15(REF)
-11 & -17 (REF)
LDW280-18320-1 ASSY (REF)
-3 ASSY (REF) A1
8
7
6
5

LDW280-18320 SH 4

01/02 NAS 9-1100


4
3
2
1
70
30
-Z27.000(REF)
+Y27.000(REF)
CUTOUT IN-13
CUTOUT IN-13
CUTOUT IN-13
CUTOUT IN-13
CUTOUT IN-13
57
TRIM OF -17&-19
CUTOUT IN-13
CUTOUT IN-19
-11&-13
-17&-19
5
10 TO PHOTO BUTT LINE ON SHEET 3
CUTOUT IN-13&-19
A IN-11-17&15(REF)
TEMPLATE BUTT LINE
H
G
F
E

LDW280-18320 SH 4

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.0 SQ. FT.

PRINT TRIM LINE

LDW280-18320 A

LDW280-18320 A

02/02

NAS 9-1100

R-26337

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE J	CODE IDENT NO. 26512	LDW280-18320	A
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

A

2FR

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K2

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10, 2.00 3.00 & 4.00		LCD 1533			✓		ADDED -17 -19 & -3 ASSY. IN NOTE 3 ADDED "BOND -17, -19 & -15. IN NOTE 4 ADDED -17 & -19. ADDED SH 1.10	LM-3(33)	NOT	REQD	E.S.K. 5-31-67		
B	1	1.00 3.00 1.10	1B				✓	LEO 280664	ADDED NOTE 5 TO DRAWING	LTA-3, LM-3 THRU LM-15	NOT	REQD	G. WIEBER 11-6-68	A.S. 11-6-68	
	2	1.00				✓		LEO 280-701 LCD 1997	CANCELLED BY LEO 280-780	LTA-3	NOT	REQD			
	3	1.00 & 3.00	1B	B		✓		LEO 280-718 LCD 1997	ADDED -5, NOTE 6 IN -1 MOD/BLK, REMOVED LM7 THRU 15 REQMTS.	LM-7 THRU LM-15	✓				
	4	1.00				✓		LEO 280-780 LCD 2309	CANCELLED LEO 280-701	LTA-3		✓			
	5	1.00 & 3.00		B		✓		EO B5 LCD 2309	REMOVED LM6 (36) REQMTS FROM -1 M/B. REMOVED -5 & NOTE 6	LM-6 THRU LM-15		✓	E.C.G.		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	MATL'S
A	6/9/67		6/9		

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18320	B
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18320 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53520	LM-3(33)	1
PART NO. LDW280-18320-3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54520	LTA-3DR(46)	1
LM	LDW280-54520	LM-5(35)	1
LM	LDW280-54520	LM-4(34)	1
PART NO. LDW280-18320-1		GAEC SCH NO. 51-3	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	B	B	A	B	A				
SHEET									
REV	–		–						
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO B	
LAST DASH NO. USED	-19	PRIM NO. 207	JK(001) ME-313-11/12/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	✓
CLASS I ENGRG CHANGE	
LCD-1533	

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	T.MACAULAY P CARSTEMSEN		
LAYOUT BY	G ZEMAN		
CHECKED BY	5·27·68		
GR LEADER	5/22/67		
VEH DES INT	5/22/67		
STRUCTURE	5/25	PROJ ENGR	D. A McCloughan 5-25-67
STRUCTURE	Hilderman 5/25	REL GROUP	Botti 5-25-67
MAT'LS	5/24/67		

(e) GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB ASSEMBLY
DESCENT STAGE-RH-UPPER DECK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18320	B
SCALE	NONE	SHEET 1.00 OF 5	

ENG 77.1 12-65

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 664
CONTROL INFO NO. LM-3-5432

ADD NOTE * TO THE FOLLOWING DRAWINGS

DRAWING NO.	CHG.	TITLE	EFFECTIVITY
✓ LDW280-18320	B1	WEB-D.S.- R.H. UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15
LDW280-18321	B1	WEB-D.S.- L.H. UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15
LDW280-18322	B3	WEB-D.S.- FWD UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15
LDW 280-18323	B2	WEB-D.S.- AFT UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15, DVT(70)

NOTE * "AT EDGE OF BONDED DOUBLERS, FM 1000 SQUEEZE-OUT MAY BE REMOVED, SUFFICIENT TO ALLOW THE APPLICATION OF A 1/8" MAXIMUM BEAD OF EC 2216. CURE EC 2216 PER LSP14-22500."

* NEXT AVAILABLE NO.

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☑ | CL I ENGRG CHG ☐ | 3

REASON FOR EO: PROVIDE IMPROVED SEALING OF WEBS.

DESCRIPTION OF EO: ADDED NOTE TO DRAWING LISTED

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK | SCRAP)

APPROVED BY					BM			
DATE	8/2/67				7-27-67	7-27-67	8/2/67	7/27/67
	VDI	SUPPORT	RE AB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 664

ISSUED BY LIAISON / VIC BOLLO X2151 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
*

DWG. NO. LE0280
EO NO. 701
CONTROL INFO NO. LDW280A9010

ADD EFF LTA-3(13) REQMTS & N/A TO THE FOLLOWING DWGS

DWG Nº	DASH Nº *	TITLE	NEXT ASSY	TITLE	CHG Nº	REQ'D /MOD
✓ LDW280-18320	-1	WEB ASSY DES: STAGE R.H. UPPER DECK	LDW280-23520	DECK INSTL DESCENT STAGE R.H. UPPER DECK	B2	1
LDW280-18321	-1	WEB ASSY (BONDED) DES.STAGE L.H. UPPER DECK	LDW280-23521	DECK INSTL DESCENT STAGE-L.H. UPPER DECK	B2	1
LDW280-18322	-1 & -3	WEB ASSY-DES. STAGE FWD UPPER DECK	LDW280-23522	DECK INSTL DESCENT STAGE FWD UPPER	B4	1 EA
LDW280-18323	-1	WEB-DESCENT STAGE AFT UPPER DECK	LDW280-23523	DECK INSTL DESCENT STAGE-AFT UPPER DECK	B3	1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD1997	3

REASON FOR EO: INCREASE CRACK RESISTANCE OF WEBS

DESCRIPTION OF EO: ON -* ADDED LTA-3(13) EFF.

Ⓡ GAEC EO RELEASE: VK 9/7/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ ; RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP — NOT REQD

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT
APPROVED BY								
DATE	8/31/67			8/31/67	9/1/67		9/1/67	9/6/67
	VD1							

PRIORITY: C
DRAWING TITLE: SEE DRAWING (NOTED ABOVE)
DRAWING NO.: LE0280
EO NO.: 701

9/8
ISSUED BY J. ANDERSEN / J. STRAKOSCH x1153 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 718
CONTROL INFO NO. LDW280A9287

ON THE FOLLOWING DWGS, ADD -* IDENTICAL TO -**, EXCEPT ON -*, I & T (S) & FINISH 'SEE NOTE #', WAS I & T (E) & FINISH 'Δ'. FOR -*, N/A & QTY IDENT TO -**. ON -**, REMOVE LM-7 (37) THRU LM-15 (45) REQMTS. IN F/D, ADD NOTE #.

DWG No.	* ADD	** REMOVE	Δ FINISH	CHANGE	DWG TITLE
✓ LDW280-18320	-5	-1	SEE NOTE 2	B3	WEB ASSY -D/S- RH -UPPER DECK
-18321	-5	-1	SEE NOTE 3	B3	WEB ASSY-(BONDED) D/S -LH-UPPER DECK
-18322	-7 -9	-1 -3	SEE NOTE 2	B5	WEB ASSY D/S FWD UPPER DECK
LDW280 -18323	-3	-1	88	B4	WEB D/S -AFT- UPPER DECK

NOTE #: FINISH PER LPC280-43 PARA 4.5, 4.5.1, 4.6, 4.7, 5.0.

IN TITLE BLOCK, ADD LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD1997 3

REASON FOR EO: ADD SERIALIZATION & REFINE FINISH REQMTS (INCREASE CRACK RESISTANCE)

DESCRIPTION OF EO: ADDED -*, NOTE # IN -** MOD/BLK, REMOVED LM 7 THRU 15 REQMTS

Ⓡ GAEC EO RELEASE: JK 9/26/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-7 (37) THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	9/23/67			9/21/67	9/21/67			9-26-67
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG (NOTED)
DRAWING NO.: LEO 280
EO NO.: 718

9/27
ISSUED BY J. LANG/J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 780
CONTROL INFO NO. LDW280-B0133

THIS E.O. CANCELS LEO 280-701.

CANCELLED CHG. NO.	DRAWING NO.	TITLE	CANCELLING CHG. NO.
B2	LDW280-18320	WEB ASS'Y~D/S R.H.~UPPER DECK	B4
B2	LDW280-18321	WEB ASS'Y (BONDED) D/S~L.H.~UPPER DECK	B4
B4	LDW280-18322	WEB ASS'Y~D/S FWD-UPPER DECK	B6
B3	LDW280-18323	WEB ~ D/S AFT~UPPER DECK	B6

(3)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2309

REASON FOR EO: REMOVAL OF WEIGHT

DESCRIPTION OF EO: CANCELLED LEO280-701

GAEC EO RELEASE: JK 11/1/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				PGY				
DATE	10/30/67			10-30-67	10/3-/67		10/31/67	10-31-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 780

ISSUED BY J. BACKOFEN/P. THORJUSEN X1153 11-6-67 27Oct67
SECTION VEH. DES. INT.
GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18320
EO NO. B5
CONTROL INFO NO. LDW 280B0565

REMOVE LM 6 (36) REQMTS FROM -1 MOD BLOCK

REMOVE -5

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG ✓	LCD 2309

REASON FOR EO: REMOVAL OF WEIGHT

DESCRIPTION OF EO: REMOVED LM 6 (36) REQMTS FROM -1 M/B
REMOVED -5

(3)
GAEC EO RELEASE 12/4/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 6 (36)	
		THRU	
		LM 15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK	SCRAP ✓

APPROVED BY								
DATE	11/28/67			11-28-67	11/28/67		11/28/67	12-2-67
B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: WEB ASSY - D/S R.H. UPPER DECK

DRAWING NO.: LDW 280-18320

EO NO.: B5

11/28
ISSUED BY P. GAUTHIER / P. THORJUSEN
X 1153

SECTION VDI

GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.00, 1.10 2.00, 3.00 4.00	5A	LCD 1533			✓		ADDED -17, -19 & -3 ASSY. IN NOTE 2 ADDED, "BOND -17, -19 & -15". IN NOTE 4 ADDED 17 & -19. Ⓡ ADDED SH 1.10	LM-3	NOT	REQD	LUNDSTEN 5-31-67		4/1/67
B	1	3.00							INC LEO 280-664	LTA-3D/R LM 3 THRU LM 15			P. SEGURSKY 4-2-69		
	2								INC LEO 280-701	LTA-3					
	3	1.00		B					INC LEO 280-718	LM 7 THRU LM 15					
	4								INC LEO 280-780	LTA-3					
	5	1.00		B Ⓡ					INC EO B5	LM 6 THRU LM 15		Joeb	4-9-69		

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	MAT'LS
A	JAS 4/1/67		WJH 6/9/67		

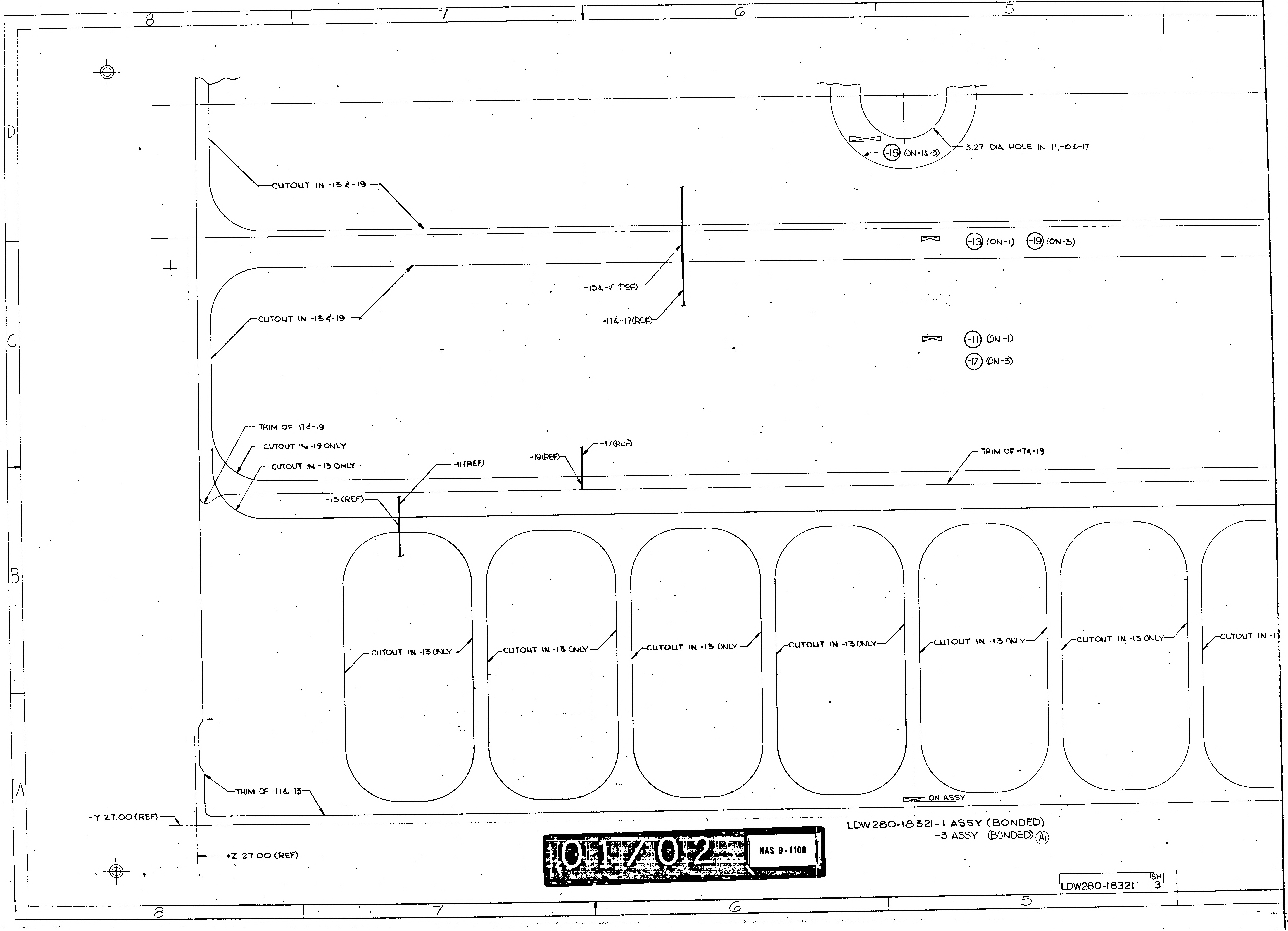
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18321
B
SCALE NONE
SHEET 1.10

ENG 77.16 3-66

01

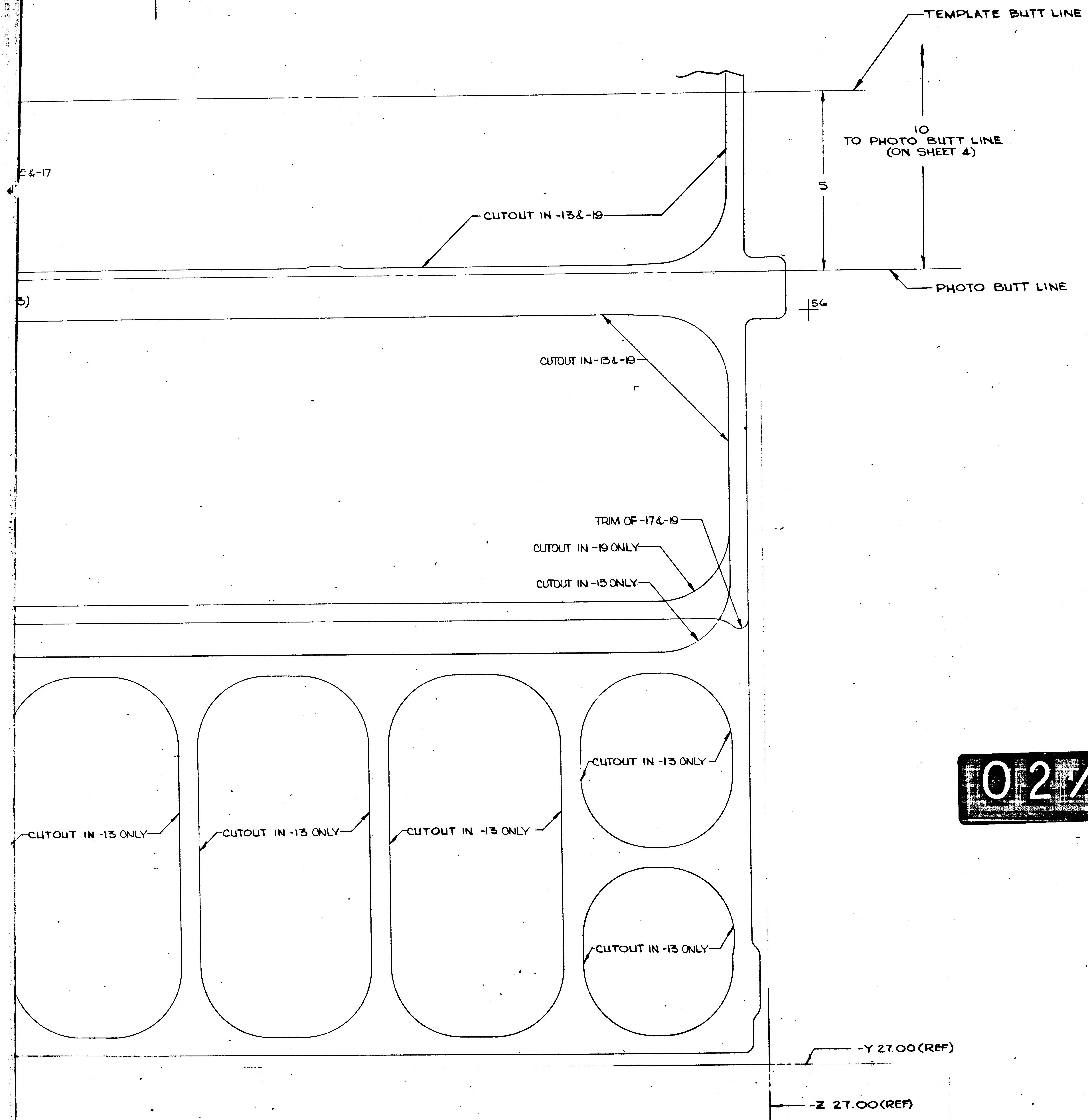
NAS 9-1100


8
7
6
5
D
C
B
A
CUTOUT IN -13 & -19
-15 (ON-1&-3)
3.27 DIA HOLE IN -11,-15&-17
-13 (ON-1) -19 (ON-3)
CUTOUT IN -13 & -19
-13&-19 (REF)
-11&-17(REF)
-11 (ON-1)
-17 (ON-3)
TRIM OF -17&-19
CUTOUT IN -19 ONLY
CUTOUT IN -13 ONLY
-11 (REF)
-19(REF)
-17(REF)
TRIM OF -17&-19
-13 (REF)
CUTOUT IN -13 ONLY
CUTOUT IN -13 ONLY
CUTOUT IN -13 ONLY
CUTOUT IN -13 ONLY
CUTOUT IN -13 ONLY
CUTOUT IN -13 ONLY
CUTOUT IN -1
ON ASSY
TRIM OF -11&-13
-Y 27.00 (REF)
+Z 27.00 (REF)

LDW280-18321-1 ASSY (BONDED)
-3 ASSY (BONDED) (A1)

01/02 NAS 9-1100

LDW280-18321 SH 3



02/02 NAS 9-1100

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	L
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 99) = 24.75 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6 SQ. FT.

PRINT TRIM LINE

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. BOND -11, -13, -15 & BOND -17, -19, -15 WITH FM1000 PER LPC280-36.
3. a) DEOXIDIZE IN ACCORDANCE WITH LSP 14-7020 EXCEPT THAT IN PARA 3.3 ONLY THE "HEAVY-DUTY ALUMINUM DE-OXIDIZER SOLUTION" (NITRIC ACID - SODIUM SULFATE) SHALL BE USED AND THE TOTAL IMMERSION SHALL BE AS SPECIFIED IN d) BELOW.
   b) CHROMIC ACID ANODIZE IN ACCORDANCE WITH LSP 14-9030 EXCEPT THAT REQTS CONCERNING ANODIC FILM WGT AND/OR CORROSION RESISTANCE SHALL NOT APPLY. THE TOTAL ANODIZING CYCLE TIME, INCLUDING VOLTAGE RUN UP SHALL BE AS SPECIFIED IN d) BELOW.
   c) EMITTANCE MEASUREMENTS SHALL BE TAKEN ON BOTH SURFACES OF A FINISHED PART AND WITH A GIER-DUNKEL PORTABLE EMISSOMETER, THE SURFACES OF THE FINISHED PART SHALL HAVE AN AVERAGE TOTAL HEMISPHERICAL EMITTANCE OF 0.40 ± 0.10 @ 100°F.
   d) PARTS WHOSE ENTIRE SURFACE AREA IS IN THE "AS ROLLED" COND SHALL BE DEOXIDIZED FOR 15 ± 1 MINUTES AND THEN CHROMIC ACID ANODIZED FOR 38 ± 1/2 MINUTES. PARTS THAT HAVE BEEN ANODIZED & POSSESS SURFACE EMITTANCE PROPERTIES OUTSIDE THE REQD TOLERANCE MAY BE REWORKED BY DEOXIDIZING FOR 35-45 MIN. AND THEN CHROMIC ACID ANODIZING FOR 38 ± 1/2 MIN.
4. STOCK FOR -11, -13, -15, -17 & -19 TO BE HAND SELECTED OR PURCHASED TO MEET THICKNESS TOLERANCE OF .020 ± .001.
5. AT EDGE OF BONDED DOUBLERS, FM 1000 SQUEEZE-OUT MAY BE REMOVED, SUFFICIENT TO ALLOW THE APPLICATION OF A 1/8" MAXIMUM BEAD OF EC 2216. CURE EC 2216 PER LSP 14-22500.

B LDW280-18321 B

A LDW280-18321 B

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM MODEL OR END ITEM	SIZE J	CODE IDENT NO. 26512	LDW280-18321	B
	SCALE FULL		SHEET 3.00	

K3

FOR PHOTO REPRODUCTION

2FR

LDW280-18321 SH 3

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			SEE NOTE 2	E	ADHESIVE							
					ADI							
1			LDW280-18321-19	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	NOTE4 ×43×55	NONE	NONE	
1			LDW280-18321-17	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	NOTE4 ×43×55	NONE	NONE	
1	1		LDW280-18321-15	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	NOTE4 × 7 × 7	NONE	NONE	
	1		LDW280-18321-13	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	NOTE 4×55×55	NONE	NONE	
	1		LDW280-18321-11	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	NOTE 4×55×55	NONE	NONE	
			LDW280-18321-3	E	WEB ASSY (BONDED)					NOTE2	NOTE3	5A
			LDW280-18321-1	E	WEB ASSY (BONDED)					NOTE2	NOTE3	5A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

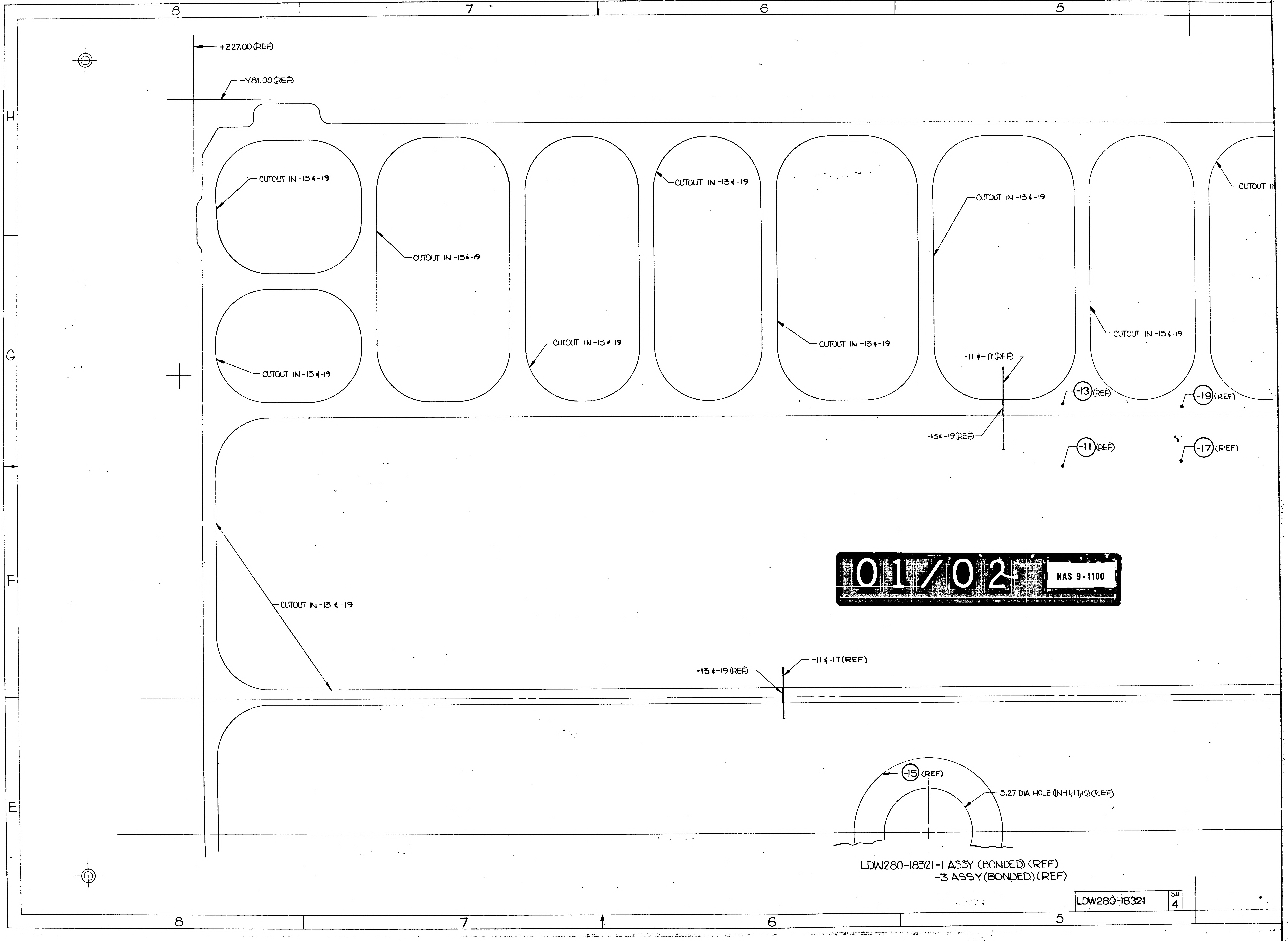
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18321
A
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

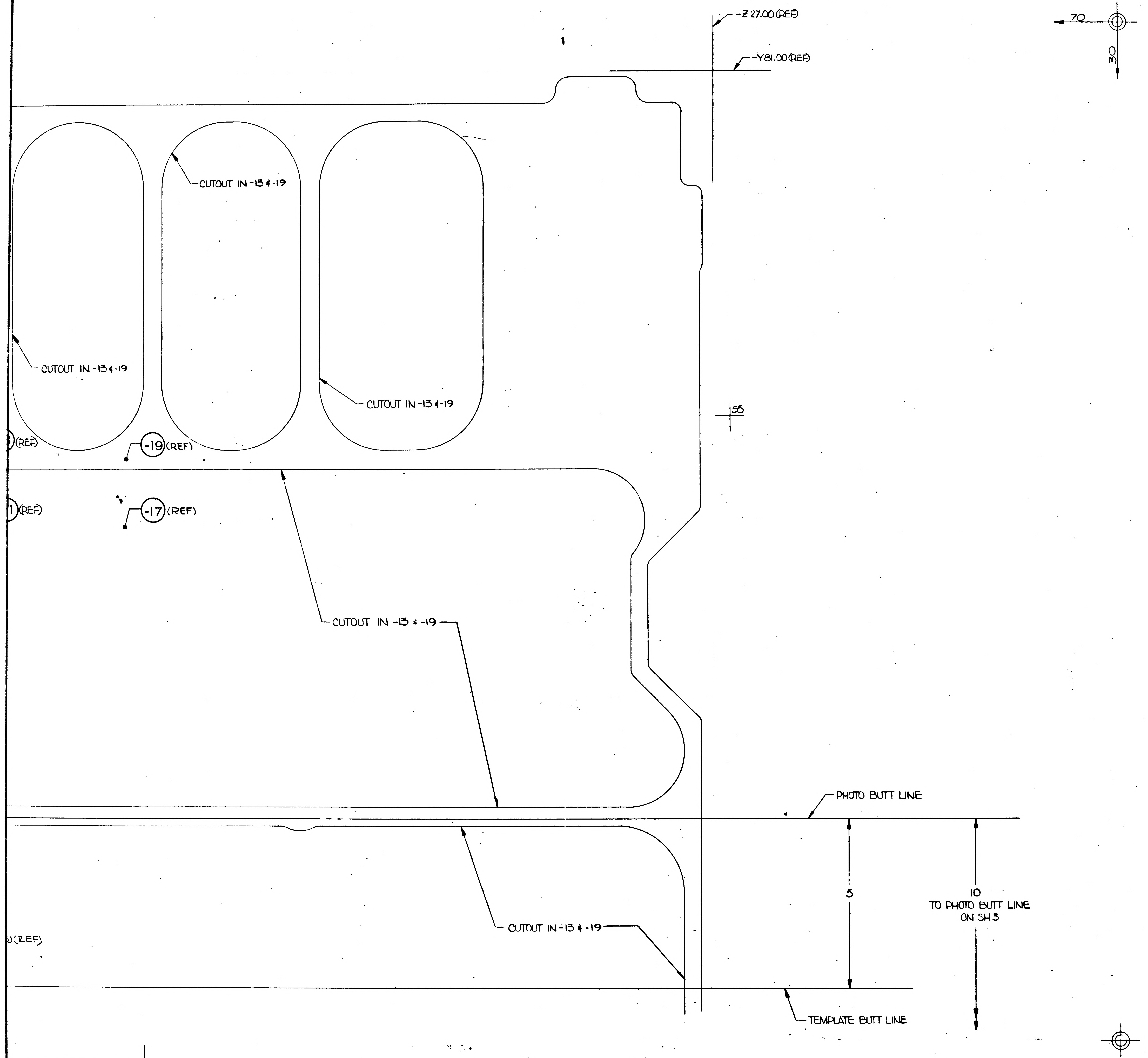
NAS 9-1100


8
7
6
5
H
G
F
E
+Z27.00 (REF)
-Y81.00 (REF)
CUTOUT IN -13 & -19
CUTOUT IN -13 & -19
CUTOUT IN -13 & -19
CUTOUT IN -13 & -19
CUTOUT IN -13 & -19
CUTOUT IN -13 & -19
CUTOUT IN -13 & -19
CUTOUT IN -13 & -19
CUTOUT IN -13 & -19
CUTOUT IN
-11 & -17 (REF)
-13 & -19 (REF)
-13 (REF)
-19 (REF)
-11 (REF)
-17 (REF)
-13 & -19 (REF)
-11 & -17 (REF)
-15 (REF)
3.27 DIA HOLE (IN -11,-17,-15) (REF)
LDW280-18321-1 ASSY (BONDED) (REF)
-3 ASSY (BONDED) (REF)
8
7
6
5

01/02 NAS 9-1100

LDW280-18321 SH 4

4 | 3 | 2 | 1



-Z 27.00 (REF)
-Y81.00 (REF)
70
30
CUTOUT IN -13 & -19
CUTOUT IN -13 & -19
CUTOUT IN -13 & -19
(REF)
-19 (REF)
(REF)
-17 (REF)
55
CUTOUT IN -13 & -19
PHOTO BUTT LINE
5
10
TO PHOTO BUTT LINE
ON SH 3
CUTOUT IN -13 & -19
(REF)
TEMPLATE BUTT LINE

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ⊠
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6 SQ. FT.

PRINT TRIM LINE

H

G

LDW280-18321 A

LDW280-18321 A

02/02 NAS 9-1100

DW280-18321 SH 4

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK				
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18321	A
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

A

K2

FOR PHOTO REPRODUCTION

2FR

R-24837

4 | 3 | 2

LDW280-18321 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53521	LM-3 (33)	1
PART NO. LDW280-18321-3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54521	LTA-3DR (46)	1
LM	LDW280-54521	LM-5 (35)	1
LM	LDW280-54521	LM-4 (34)	1
PART NO. LDW280-18321-1		GAEC SCH NO. 51-3	

WORK PKG FUNCTION # 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	B	B	A	B	A				
SHEET									
REV									
SHEET									
REV									

		GRUMMAN REL INFO C B	
LAST SECT LTR USED	—	PRIM NO.	JK(001)
LAST DASH NO. USED	-19	207	ME-1B-4/9/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE ✓

CLASS I ENGRG CHANGE

LCO-1533

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	SICK
LAYOUT BY	PALLMEYER
CHECKED BY	D. FASS 5-25-67
GR. LEADER	5/25/67
VEH DES INT	5/25/67
STRUCTURES	5/25
STRUCTURES	5/25
MAT'LS	5/24/67
PROJ ENGR	D. A. Mc[illegible] 5-25-67
REL GROUP	Botti 5-25-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB ASSEMBLY (BONDED)
DESCENT STAGE ~ LH UPPER DECK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18321	B
SCALE	NONE	SHEET 1.00 OF 5	

ENG 77.1 12-65

01

NAS 9-1100

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 664
CONTROL INFO NO. LM-3-5432

ADD NOTE * TO THE FOLLOWING DRAWINGS

DRAWING NO.	CHG.	TITLE	EFFECTIVITY
✓ LDW280-18320	B1	WEB-D.S.- R.H. UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15
✓ LDW280-18321	B1	WEB-D.S.- L.H. UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15
LDW280-18322	B3	WEB-D.S.- FWD UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15
LDW 280-13323	B2	WEB-D.S.- AFT UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15, DVT(70)

NOTE * "AT EDGE OF BONDED DOUBLERS, FM 1000 SQUEEZE-OUT MAY BE REMOVED, SUFFICIENT TO ALLOW THE APPLICATION OF A 1/8" MAXIMUM BEAD OF EC 2216. CURE EC 2216 PER LSP14-22500."

* NEXT AVAILABLE NO.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: PROVIDE IMPROVED SEALING OF WEBS.

DESCRIPTION OF EO: ADDED NOTE TO DRAWING LISTED

GAEC EO RELEASE: C 3 JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK / SCRAP — NOT REQD

APPROVED BY					BM		WRB	
DATE	8/2/67				7-27-67	7-27-67	8/2/67	8/27/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO. LEO 280
EO NO. 664

ISSUED BY LIAISON / VIC BOLLO X2151 SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LE0280
EO NO. 701
CONTROL INFO NO. LDW280A9010

ADD EFF LTA-3(13) REQMTS & N/A TO THE FOLLOWING DWGS

	DWG Nº	DASH Nº *	TITLE	NEXT ASSY	TITLE	CHG Nº	REQ'D/MOD
✓	LDW280-18320	-1	WEB ASSY DES. STAGE R.H. UPPER DECK	LDW280-23520	DECK INSTL DESCENT STAGE R.H. UPPER DECK	B2	1
✓	LDW280-18321	-1	WEB ASSY (BONDED) DES. STAGE L.H. UPPER DECK	LDW280-23521	DECK INSTL DESCENT STAGE-L.H. UPPER DECK	B2	1
	LDW280-18322	-1 & -3	WEB ASSY-DES. STAGE FWD UPPER DECK	LDW280-23522	DECK INSTL DESCENT STAGE FWD UPPER	B4	1 EA
	LDW280-18323	-1	WEB-DESCENT STAGE AFT UPPER DECK	LDW280-23523	DECK INSTL DESCENT STAGE-AFT UPPER DECK	B3	1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1997 3

REASON FOR EO: INCREASE CRACK RESISTANCE OF WEBS

DESCRIPTION OF EO: ON -* ADDED LTA-3(13) EFF.

Ⓡ GAEC EO RELEASE: JK 9/7/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	jaf								
DATE	8/31/67			8/31/67	9/1/67		9/1/67	9/6/67	
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~	

PRIORITY: C
DRAWING TITLE: SEE DRAWING (NOTED ABOVE)
DRAWING NO.: LE0280
EO NO.: 701

9/8
ISSUED BY J. ANDERSEN / J. STRAKOSCH X1153 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

M

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 718
CONTROL INFO NO. LDW280A 9287

ON THE FOLLOWING DWGS, ADD -* IDENTICAL TO -**, EXCEPT ON -*, I & T (S) & FINISH 'SEE NOTE ≠', WAS I & T (E) & FINISH 'Δ'. FOR -*, N/A & QTY IDENT TO -**. ON -**, REMOVE LM-7 (37) THRU LM-15 (45) REQMTS. IN F/D, ADD NOTE ≠.

DWG No.	* ADD	** REMOVE	Δ FINISH	CHANGE	DWG TITLE
✓ LDW280-18320	-5	-1	SEE NOTE 2	B3	WEB ASSY -D/S- RH-UPPER DECK
✓ -18321	-5	-1	SEE NOTE 3	B3	WEB ASSY-(BONDED) D/S-LH-UPPER DECK
-18322	-7 -9	-1 -3	SEE NOTE 2	B5	WEB ASSY D/S FWD UPPER DECK
LDW280 -18323	-3	-1	88	B4	WEB D/S-AFT-UPPER DECK

NOTE ≠: FINISH PER LPC280-43 PARA 4.5, 4.5.1, 4.6, 4.7, 5.0.

IN TITLE BLOCK, ADD LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

≠ USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD1997 3

REASON FOR EO: ADD SERIALIZATION & REFINE FINISH REQMTS (INCREASE CRACK RESISTANCE)

DESCRIPTION OF EO: ADDED -*, NOTE ≠ IN -** MOD/BLK, REMOVED LM7 THRU 15 REQMTS

Ⓡ GAEC EO RELEASE: JK 9/26/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-7 (37) THRU LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP

	B	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	9/23/67			9/21/67	9/21/67			9-26-67
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG (NOTED)	LEO 280	718

9/27
ISSUED BY J. LANG/J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 780
CONTROL INFO NO. LDW280-B0133

THIS E.O. CANCELS LEO 280-701.

CANCELLED CHG. NO.	DRAWING NO.	TITLE	CANCELLING CHG. NO.
B2	LDW280-18320	WEB ASS'Y~D/S R.H.~UPPER DECK	B4 ✓
B2	LDW280-18321	WEB ASS'Y (BONDED) D/S~L.H.~UPPER DECK	B4 ✓
B4	LDW280-18322	WEB ASS'Y~D/S FWD-UPPER DECK	B6
B3	LDW280-18323	WEB~D/S AFT-UPPER DECK	B6

(3)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2309

REASON FOR EO: REMOVAL OF WEIGHT

DESCRIPTION OF EO: CANCELLED LEO280-701

GAEC EO RELEASE: C JK 11/1/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ☐ SCRAP ☑

APPROVED BY — DATE: 10/30/67 — VDI; SUPPORT; RELIAB. GROUP; GROUP LEADER 10-30-67; STRESS GROUP 11/3/67; LIAISON ENGRG; PROJ ENGRG 10/31/67; 10-31-67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 780

ISSUED BY J. BACKOFEN / P. THORJUSEN X1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 25
11-6-67 27Oct'67

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

4G 32.1 REV 3-65

DWG. NO. LDW280-18321
EO NO. B5
CONTROL INFO NO. LDW 280 B 0566

REMOVE LM 6(36) REQ'MTS FROM -1 MOD BLOCK

REMOVE -5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2309 (5)

REASON FOR EO: REMOVAL OF WEIGHT

DESCRIPTION OF EO: REMVD LM 6(36) REQMTS FROM -1 M/B
REMOVED -5

GAEC EO RELEASE: 12-2-67

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM 6 (36)	
		THRU	
		LM 15(45)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								Botti
DATE	11/28/67			11-28-67	11/28/67		11/28/67	12-1-67
B								

PRIORITY: C

DRAWING TITLE: WEB ASS'Y D/S L.H. UPPER DECK

DRAWING NO.: LDW 280-18321

EO NO.: B5

11/28
ISSUED BY P. GAUTHIER / P.THORJUSEN
X1153

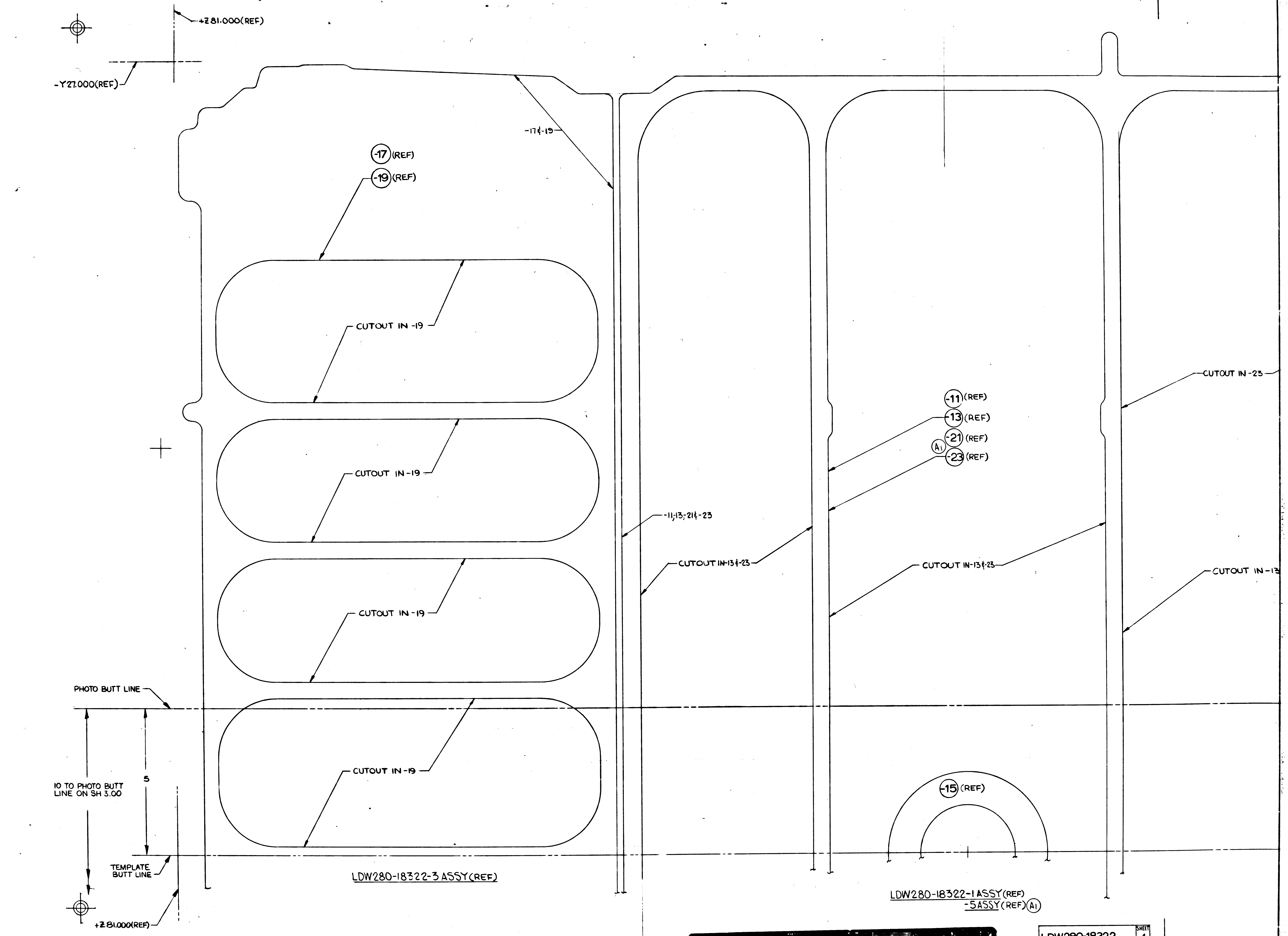
SECTION V.D.I.

GROUP NO. 335

PL 25

01

NAS 9-1100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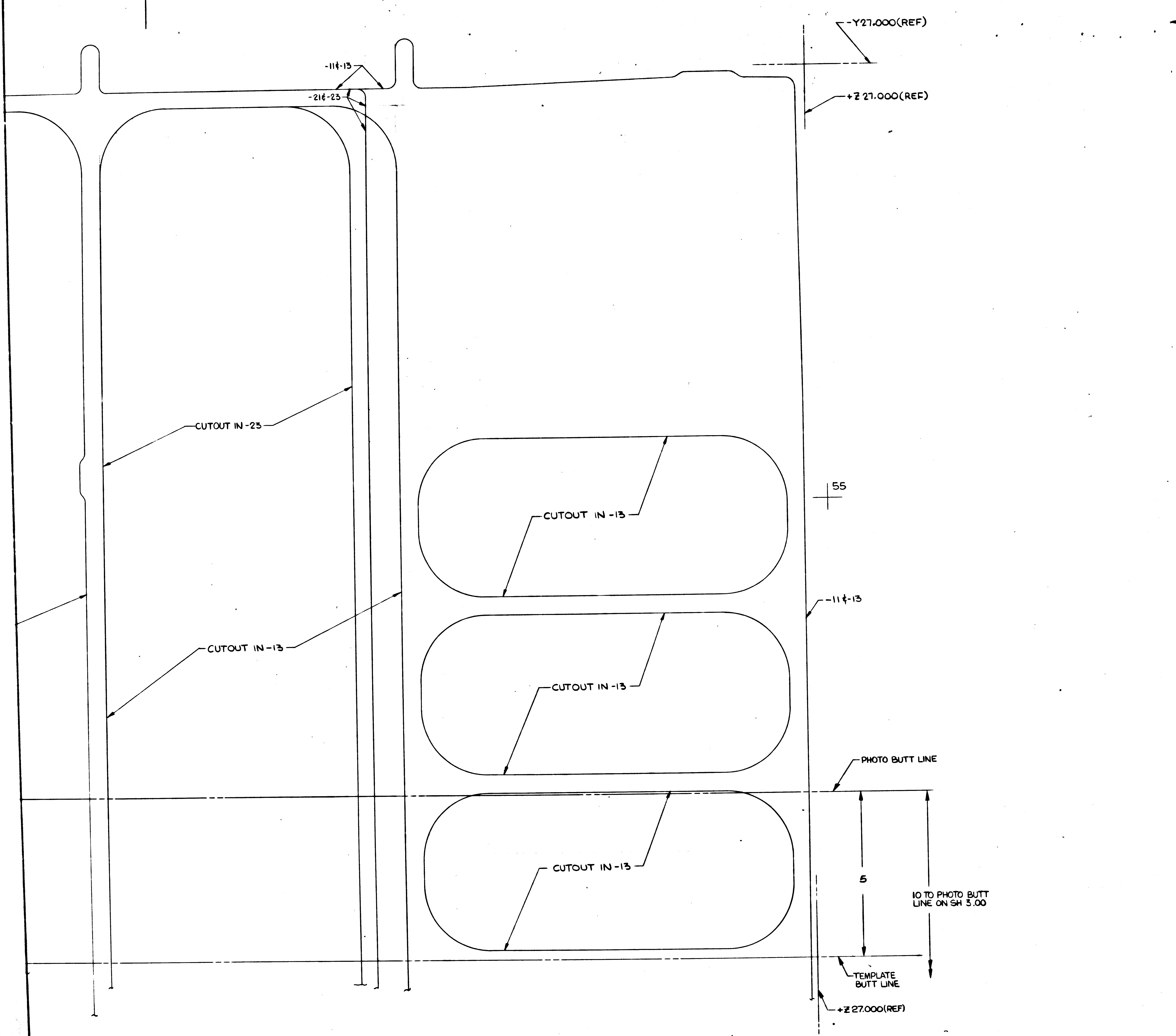
CUTOUT IN -19
-11 (REF)
-13 (REF)
-21 (REF)
A1
-23 (REF)
CUTOUT IN -23
-11,-13,-21 & -23
CUTOUT IN -13 & -23
CUTOUT IN -13 & -23
CUTOUT IN -13
PHOTO BUTT LINE
10 TO PHOTO BUTT LINE ON SH 3.00
5
TEMPLATE BUTT LINE
+Z81.000(REF)
-15 (REF)
LDW280-18322-3 ASSY (REF)
LDW280-18322-1 ASSY (REF)
-5 ASSY (REF) A1
8
7
6
5
H
G
F
E

01/02

NAS 9-1100

LDW280-18322	SHEET 4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CUTOUT IN -23
CUTOUT IN -13
CUTOUT IN -13
CUTOUT IN -13
CUTOUT IN -13
-11¢-13
55
70
30
PHOTO BUTT LINE
5
10 TO PHOTO BUTT LINE ON SH 3.00
TEMPLATE BUTT LINE
+Z 27.000(REF)
4
3
2
1
H
G
F
E

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125 SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 99) = 24.75 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6 SQ. FT.

PRINT TRIM LINE

LDW280-18322A

LDW280-18322A

02/02

NAS 9-1100

R-2483Y

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-18322	A
	SCALE FULL		SHEET 4.00	

FOR PHOTO REPRODUCTION 2FR K2

DW280-18322 SHEET 4

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1,2,3,4 & 1.10		LCD 1533			✓		ADDED -21,-23 & -5 ASSY. IN NOTE 3 ADDED BOND -21 & -23. IN NOTE 4 ADDED -21 & -23. ADDED SH 1.10	LM-3	NOT	REQD	NARONIS 6-1-67		
B	1	1.00, 1.10					✓	EO B1	FOR -3, IN MOD BLK REVISED NEXT ASSY, LDW280-54522 WAS LDW280-53522.	LM-4 THRU LM-15, LTA-3DR	NOT	REQD	F. RODGERS 11-7-68		
	2	1.10 2.00					✓	EO B2	IN MOD BLK REMOVE FROM LDW280-18322 -23, -21, -19, -17, -15, -13, -11 "SEE NOTE 2" AND ADD "NONE" TO FINISH NO. COLUMN ADD PROCESS SYM "SEE NOTE 3" AND TO FINISH NO. "SEE NOTE 2" FOR FOLLOWING ASSYS LDW280-18322 -5, -3, -1	LTA-3DR, LM-3 THRU LM-15	✓				
	3	1.10 3.00	2B				✓	LEO 280-664	ADDED NOTE 5	LM-3 THRU LM-15, LTA-3DR	NOT	REQD			
	4	1.00, 1.10					✓	LEO 280-701 LCD 1997	ON -1 & -3 ADDED LTA-3 (13) EFF	LTA-3	NOT	REQD			
	5	1.00, 1.10, 2.00, 3.00	5A 7A	B		✓		LEO 280-718 LCD 1997	ADDED -7 & -9, NOTE ✱; IN -1 & -3 MOD BLK REMOVED LM-7 THRU LM-15 REQUIREMENTS.	LM-7 THRU LM-15	✓				
	6	1.00, 1.10				✓		LEO 280-780 LCD 2309	CANCELLED LEO 280-701	LTA-3		✓			
	7	1.00, 1.10, 2.00, 3.00	5A 7A	B		✓		EO B7 LCD 2309	REMOVED LM-6 (36) REQMTS FROM -1, -3 MOD BLK; REMOVED -7 & -9	LM-6 THRU LM-15		✓	E.C.G.		

CHG APPROVED

LTR	~~GROUP LDR~~	VEH.DES.INT	STRUCTURES	STRUCTURES	MATERIALS	PROJ ENGR	REL GROUP
A	6/9/67		6/9				
B							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	DWG NO.	REV
B	26512	LDW280-18322	B

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18322 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53522	LM-3(33)	1

PART NO. LDW280-18322-5

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54522	LTA-3DR(46)	1
↕	LDW280-54522	LM-5(35)	1
↕	LDW280-54522	LM-4(34)	1
LM	LDW280-53522	LM-3(33)	1

PART NO. LDW280-18322-3

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54522	LTA-3DR(46)	1
LM	LDW280-54522	LM-5(35)	1
LM	LDW280-54522	LM-4(34)	1

PART NO. LDW280-18322-1

GAEC SCH NO. 51-3

WORK PKG. FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	B	B	B	B	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO B	
LAST DASH NO. USED	-23	PRIM NO. 207	JK (ac) ME-30 11/12/8

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS	DECIMALS	ANGLES
±1/32	±.020	±1/2°

ORIG DWG AUTH

LCD-1533

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	✓
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	NARONIS-HIPPLER 5-18-67
LAYOUT BY	
CHECKED BY	J Bell 5/25/67
GR.LEADER	5/25/67
VEH.DES.INT.	5/25/67
STRUCTURE	5/25/67
STRUCTURE	5/25
MATLS	

PROJ ENGR	D A McCloughan 5-25-67
REL GROUP	Both 5-25-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB ASSY
DESCENT STAGE FWD UPPER DECK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18322	B

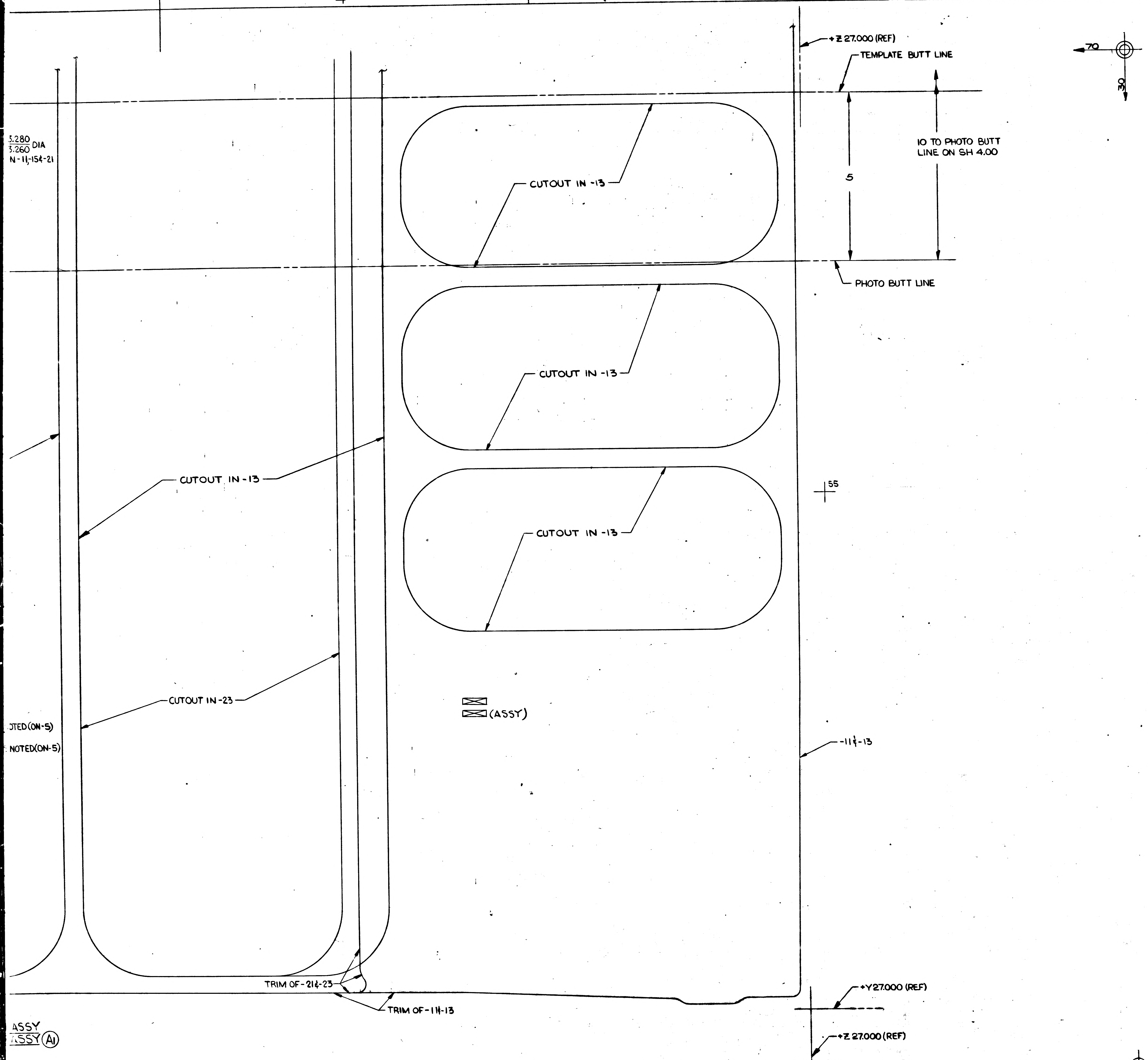
SCALE NONE

SHEET 1.00 OF 5

CDR= 6/9/67

01

NAS 9-1100



MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 88

24.75 SQ. FT.
6 SQ. FT.

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 99) =
1/2 SIZE SHEET AREA (1/4 OF FULL) =

PRINT TRIM LINE

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. (a) DEOXIDIZE IN ACCORDANCE WITH LSP14-7020 EXCEPT THAT IN PARA 3.3 ONLY THE "HEAVY DUTY ALUMINUM DEOXIDIZER SOLUTION" (NITRIC ACID-SODIUM SULFATE) SHALL BE USED AND THE TOTAL IMMERSION TIME SHALL BE AS SPECIFIED IN (d) BELOW.
   (b) CHROMIC ACID ANODIZE IN ACCORDANCE WITH LSP14-9030 EXCEPT THAT REQUIREMENTS CONCERNING ANODIC FILM WGT AND/OR CORROSION RESISTANCE SHALL NOT APPLY. THE TOTAL ANODIZING CYCLE TIME INCLUDING VOLTAGE RUN-UP SHALL BE AS SPECIFIED IN (d) BELOW.
   (c) EMITTANCE MEASUREMENTS SHALL BE TAKEN ON BOTH SURFACES OF A FINISHED PART AND WITH A GIER-DUNKEL PORTABLE EMISSOMETER. THE SURFACE OF THE FINISHED PART SHALL HAVE AN AVERAGE TOTAL HEMISPHERICAL EMITTANCE OF .40±.10 @ 100°F
   (d) PARTS WHOSE ENTIRE AREA IS IN THE "AS ROLLED" CONDITION SHALL BE DEOXIDIZED FOR 15±1 MIN. AND THAN CHROMIC ACID ANODIZED FOR 38±1/2 MIN. PARTS THAT HAVE BEEN ANODIZED AND POSSESS SURFACE EMITTANCE PROPERTIES OUTSIDE THE REQUIRED TOLERANCE MAY BE REWORKED BY DEOXIDIZING FOR 35-45 MIN. AND THEN CHROMIC ACID ANODIZING FOR 38±1/2 MIN.
3. BOND -1, -3 & -5 WITH FM 1000 PER LPC 280-36.
4. STOCK FOR -11, -13, -15, -17, -19, -21 & -23 TO BE HAND SELECTED OR PURCHASED TO MEET THICKNESS TOLERANCE OF .020 ±.001.
5. AT EDGE OF BONDED DOUBLERS FM 1000 SQUEEZE-OUT MAY BE REMOVED, SUFFICIENT TO ALLOW THE APPLICATION OF A 1/8" MAXIMUM BEAD OF EC 2216. CURE EC 2216 PER LSP14-22500.

(B5) 6. ~~FINISH PER LCP280-43 PARA 45, 45.1, 46, 47, 50~~ (B7)

02/02 NAS 9-1100

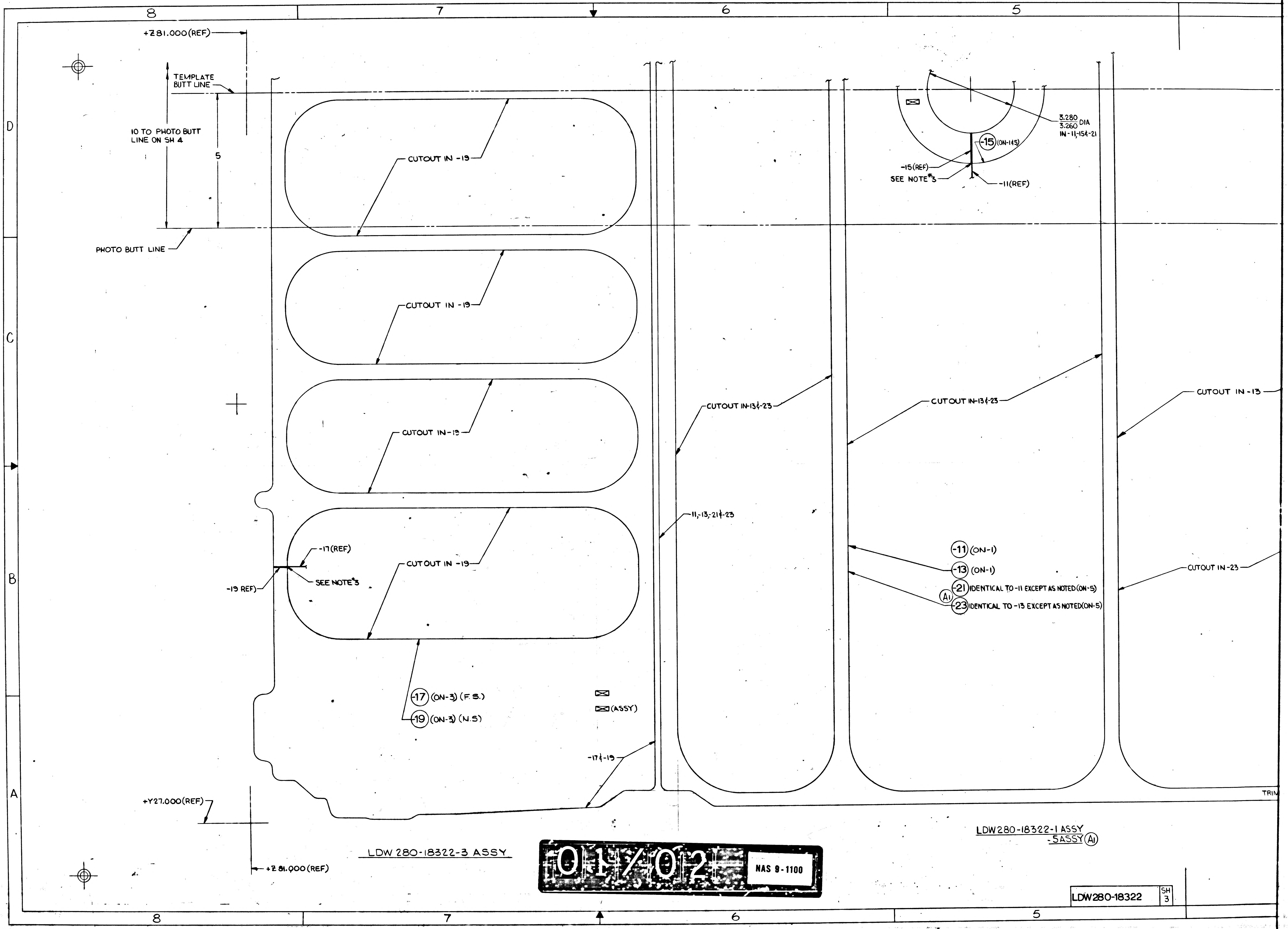
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18322	B
MODEL OR END ITEM	SCALE FULL			SHEET 3.00

LDW280-18322 B

LDW280-18322 B

LDW280-18322 SH 3

FOR PHOTO 1 REPRODUCTION 2 FR K2


8
7
6
5
D
C
B
A
+Z81.000 (REF)
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SH 4
5
PHOTO BUTT LINE
CUTOUT IN -19
CUTOUT IN -19
CUTOUT IN -19
CUTOUT IN -19
-17 (REF)
SEE NOTE #3
-19 REF)
-17 (ON-3) (F.S.)
-19 (ON-3) (N.S)
(ASSY)
-17 & -19
+Y27.000 (REF)
+Z 81.000 (REF)
LDW 280-18322-3 ASSY
3.280
3.260 DIA
IN -11, -15 & -21
-15 (ON-1&5)
-15 (REF)
SEE NOTE #3
-11 (REF)
CUTOUT IN -13 & -23
CUTOUT IN -13 & -23
CUTOUT IN -13
11, -13, -21 & -23
-11 (ON-1)
-13 (ON-1)
-21 IDENTICAL TO -11 EXCEPT AS NOTED (ON-5)
A1
-23 IDENTICAL TO -13 EXCEPT AS NOTED (ON-5)
CUTOUT IN -23
TRIM
LDW280-18322-1 ASSY
-5 ASSY A1

01/02

NAS 9-1100

LDW280-18322 SH 3

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				-5	-3	-1											
				AS REQD	AS REQD	AS REQD		ADHESIVE	E	SEE NOTE 3							
				1				LDW280-18322-23		DOUBLER	AL. ALLOY SH	QQ-A-250/12	7075-T6	SEE NOTE 4×26×55	NONE	NONE	5B
				1				-21		WEB				SEE NOTE 4×26×55	NONE	NONE	5B
					1			-19		DOUBLER				SEE NOTE 4×16×55	NONE	NONE	7A
					1			-17		WEB				SEE NOTE 4×16×55	NONE	NONE	7A
				1		1		-15		DOUBLER				SEE NOTE 4×39×55	NONE	NONE	5D
						1		-13		DOUBLER				SEE NOTE 4×39×55	NONE	NONE	5B
						1		LDW280-18322-11		WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	SEE NOTE 4×39×55	NONE	NONE	5B
								LDW280-18322-5		WEB ASSY (BONDED)					SEE NOTE 3	SEE NOTE 2	
								LDW280-18322-3		WEB ASSY (BONDED)					SEE NOTE 3	SEE NOTE 2	
								LDW280-18322-1	E	WEB ASSY (BONDED)					SEE NOTE 3	SEE NOTE 2	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						38	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18322	B ⑧
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING _ .DER

*

DWG. NO. LDW280-18322
EO NO. B1
CONTROL INFO NO. LM-2-3744

FOR -3 ASSY, IN MODEL BLOCK FOR LM-4(34) THRU LM-15(45) & LTA-3D/R(46) EFFECTIVITY, REVISE NEXT ASSEMBLY FROM LDW280-53522 TO LDW280-54522.

(NOTE: FOR LM-3; LDW280-53522 IS CORRECT NEXT ASSY)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ 2

REASON FOR EO: INCORRECT NEXT ASSY CALLOUT ON INITIAL RELEASE OF DRAWING

DESCRIPTION OF EO: FOR -3, IN MOD/BLK REVISED NEXT ASSY, LDW280-54522 WAS LDW280-53522

GAEC C EO RELEASE: JK 46 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45)	
		LTA-3DR(46)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

APPROVED BY: VDI
DATE: 7/21/67

	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
			~				
			~	7/19/67	7/18/67	7/20	7/19/67

PRIORITY: C
DRAWING TITLE: WEB ASSEMBLY DESCENT STAGE~FWD UPPER DECK
DRAWING NO.: LDW280-18322
EO NO.: B1

ISSUED BY LIAISON J. MALONEY 7/17/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

B mf

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW 280-18322
EO NO. B2
CONTROL INFO NO. LM 2-3762

IN B/M

REMOVE "SEE NOTE 2" AND ADD "NONE" TO FINISH NO. OF FOLLOWING DETAILS: LDW280-18322-23, -21, -19, -17, -15, -13, -11

ADD TO PROCESS SYM. "SEE NOTE 3"
AND TO FINISH NO. "SEE NOTE 2"
FOR FOLLOWING ASS'YS., LDW280-18322-5, -3, -1

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		2

REASON FOR EO: CORRECT SEQUENCE OF PROCESS AND FINISH FOR ASSY'S. & DETAILS

DESCRIPTION OF EO: IN B/M REMOVE FROM LDW280-18322-23, -21, -19, -17, -15, -13, -11 "SEE NOTE 2" AND ADD "NONE" TO FINISH NO. COLUMN. ADD PROCESS SYM. "SEE NOTE 3" AND TO FINISH NO. "SEE NOTE 2" FOR FOLLOWING ASS'YS. LDW280-18322-5, -3, -1

GAEC EO RELEASE: C VK 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR(46)	
		LM-3(33)	
		THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK ✓	SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY	Jaf			~	MBS	Ctf	WLB	
DATE	7/26/67			~	7/24/67	7/22/67	7/26/67	7/26/67

PRIORITY: C
DRAWING TITLE: WEB ASSY. ~ DESCENT STAGE FW'D. UPPER DECK
DRAWING NO.: LDW280-18322
EO NO.: B2

ISSUED BY LIAISON M. BUCKMAN (x3604) 7-21-67 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280		EO NO. 664	
CONTROL INFO NO.	LM-3-5432		

ADD NOTE * TO THE FOLLOWING DRAWINGS

DRAWING NO.	CHG.	TITLE	EFFECTIVITY
✓ LDW280-18320	B1	WEB-D.S.- R.H. UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15
✓ LDW280-18321	B1	WEB-D.S.- L.H. UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15
✓ LDW280-18322	B3	WEB-D.S.- FWD UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15
LDW 280-18323	B2	WEB-D.S.- AFT UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15, DVT(70)

NOTE * "AT EDGE OF BONDED DOUBLERS, FM 1000 SQUEEZE-OUT MAY BE REMOVED, SUFFICIENT TO ALLOW THE APPLICATION OF A 1/8" MAXIMUM BEAD OF EC 2216. CURE EC 2216 PER LSP14-22500."

* NEXT AVAILABLE NO.

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO PROVIDE IMPROVED SEALING OF WEBS.	DESCRIPTION OF EO ADDED NOTE TO DRAWING LISTED	GAEC EO RELEASE 3 C

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY				BM				
✓		NOT REQD		DATE	8/2/67			7-27-67	7-27-67	8/2/67	8/27/67	
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	664

ISSUED BY LIAISON / VIC BOLLO X2151 SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
*

DWG. NO. LE0280
EO NO. 701
CONTROL INFO NO. LDW280A9010

ADD EFF LTA-3(13) REQMTS & N/A TO THE FOLLOWING DWGS

DWG Nº	* DASH Nº	TITLE	NEXT ASSY	TITLE	CHG Nº	REQ'D /MOD
✓ LDW280-18320	-1	WEB ASSY DES. STAGE R.H. UPPER DECK	LDW280-23520	DECK INSTL DESCENT STAGE R.H. UPPER DECK	B2	1
✓ LDW280-18321	-1	WEB ASSY (BONDED) DES. STAGE L.H. UPPER DECK	LDW280-23521	DECK INSTL DESCENT STAGE - L.H. UPPER DECK	B2	1
✓ LDW280-18322	-1 & -3	WEB ASSY - DES. STAGE FWD UPPER DECK	LDW280-23522	DECK INSTL DESCENT STAGE FWD UPPER	B4	1 EA
LDW280-18323	-1	WEB - DESCENT STAGE AFT UPPER DECK	LDW280-23523	DECK INSTL DESCENT STAGE - AFT UPPER DECK	B3	1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1997	3

REASON FOR EO: INCREASE CRACK RESISTANCE OF WEBS

DESCRIPTION OF EO: ON -* ADDED LTA-3(13) EFF.

Ⓡ GAEC EO RELEASE: 9/7/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT
DATE	8/31/67			8/31/67	9/1/67		9/1/67	9/6/67
	VD1							

PRIORITY: C
DRAWING TITLE: SEE DRAWING (NOTED ABOVE)
DRAWING NO.: LE0280
EO NO.: 701

ISSUED BY 9/8 J. ANDERSEN / J. STRAKOSCH X1153 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280		EO NO. 718
CONTROL INFO NO. LDW280A9287		

ON THE FOLLOWING DWGS, ADD -* IDENTICAL TO -**, EXCEPT ON -*, I & T (S) & FINISH 'SEE NOTE ≠', WAS I & T (E) & FINISH 'Δ'. FOR -*, N/A & QTY IDENT TO -**. ON -**, REMOVE LM-7 (37) THRU LM-15 (45) REQMTS. IN F/D, ADD NOTE ≠.

	DWG No.	* ADD	** REMOVE	Δ FINISH	CHANGE	DWG TITLE
✓	LDW280-18320	-5	-1	SEE NOTE 2	B3	WEB ASSY -D/S- RH -UPPER DECK
✓	-18321	-5	-1	SEE NOTE 3	B3	WEB ASSY -(BONDED) D/S -LH-UPPER DECK
✓	-18322	-7 -9	-1 -3	SEE NOTE 2	B5	WEB ASSY D/S FWD UPPER DECK
	LDW280 -18323	-3	-1	88	B4	WEB D/S -AFT- UPPER DECK

NOTE ≠: FINISH PER LPC280-43 PARA 4.5, 4.5.1, 4.6, 4.7, 5.0.

IN TITLE BLOCK, ADD LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

≠ USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD1997 3

REASON FOR EO ADD SERIALIZATION & REFINE FINISH REQMTS (INCREASE CRACK RESISTANCE)	DESCRIPTION OF EO ADDED -*, NOTE ≠ IN -** MOD/BLK, REMOVED LM7 THRU 15 REQMTS	Ⓡ GAEC EO RELEASE JK 9/26/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-7 (37) THRU LM-15 (45)	

DRAWING CHANGE REQD	REVISE DWG ✓	RECORD EO	
DISPOSITION OF PARTS	REWORK ✓	SCRAP	

	B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY									
DATE		9/23/67			9/21/67	9/21/67			9-26-67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG (NOTED)	LEO280	718

9/27
ISSUED BY J. LANG/J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 780
CONTROL INFO NO. LDW280-B0133

THIS E.O. CANCELS LEO 280-701.

CANCELLED CHG. NO.	DRAWING NO.	TITLE	CANCELLING CHG. NO.
B2	LDW280-18320	WEB ASS'Y~D/S R.H.~UPPER DECK	B4 ✓
B2	LDW280-18321	WEB ASS'Y (BONDED) D/S~L.H.~UPPER DECK	B4 ✓
B4	LDW280-18322	WEB ASS'Y~D/S FWD-UPPER DECK	B6 ✓
B3	LDW280-18323	WEB~D/S AFT-UPPER DECK	B6

(3)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2309

REASON FOR EO: REMOVAL OF WEIGHT

DESCRIPTION OF EO: CANCELLED LEO 280-701

GAEC EO RELEASE: JK 11/1/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

APPROVED BY								
DATE	10/30/67			10-30-67	11/3-67		10/31/67	10-31-67
—	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 780

ISSUED BY J. BACKOFEN/P. THORJUSEN X1153 11-6-67 2707'67 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW 280-18322
EO NO. B7
CONTROL INFO NO. LDW 280 B 0567

REMOVE LM 6 (36) REQM'TS FROM -1 & -3 M/B
REMOVE -7 & -9

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 2309

REASON FOR EO: REMOVAL OF WEIGHT

DESCRIPTION OF EO: REMOVED LM 6 (36) REQMTS FROM -1,-3 M/B
REMOVED -7,-9

(3)
GAEC EO RELEASE: 12/4/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 6 (36)	
		THRU	
		LM1545	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY				PJ	WPR				Botti
DATE	11/28/67			11-28-67	11/28/67			11/28/67	12-2-67
B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C
DRAWING TITLE: WEB ASSY D/S FWD UPPER DECK
DRAWING NO.: LDW280-18322
EO NO.: B7

11/28
ISSUED BY P. GAUTHIER / P. THORJUSEN
X1153
SECTION VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18323 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53523	LM-3 (23)	1
LM	LDW280-53523	DVT (70)	3

PART NO. LDW280-18323-3 — GAEC SCH NO. 51-3

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54523	LTA-3 D/R (46)	1
LM	LDW280-54523	LM-5 (35)	1
LM	LDW280-54523	LM-4 (34)	1
LM	LDW280-54523	DVT (10)	3

PART NO. LDW280-18323-1 — GAEC SCH NO. 51-3

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00	4.00			
REV	B	B	B		B	B			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —
LAST DASH NO. USED -17
GRUMMAN REL INFO B
PRIM NO. 207 JK(001) ME-3B-11/13/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/32 ±.020 ± 1/2
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE
LCD-1533

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY E.WICK J.GRIECO 5-18-67
MATL'S 5-17-67
LAYOUT BY
CHECKED BY
GROUP LEADER 5/13/67
TECH DES INT J. Lusater 5/19/67
STRUCTURES 5/19/67
STRUCTURES 5/16/67
PROJ ENGR D.G. McCloughan 5/19/67
REL GROUP Batt 5/17/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE- AFT- UPPER DECK

SIZE B
CODE IDENT NO. 26512
LDW280-18323 B
SCALE NONE
SHEET 1.00 OF 5

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AR	AR		SEE NOTE 2	E	ADHESIVE							
1			LDW280-18323-17	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	SEE NOTE 4, 43x56	NONE	NONE	
1			-15		DOUBLER				,43x56			
	1		-13		DOUBLER				,55x56			
	1		-11		WEB	AL.ALLOY SH	QQ-A-250/12	7075-T6	SEE NOTE 4, 55x56		NONE	
			-3		WEB ASSY (BONDED)	SEE	NOTE 2 & 5				88	
			LDW280-18323-1	E	WEB ASSY (BONDED)	SEE	NOTE 2 & 5			NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18323 | B ③

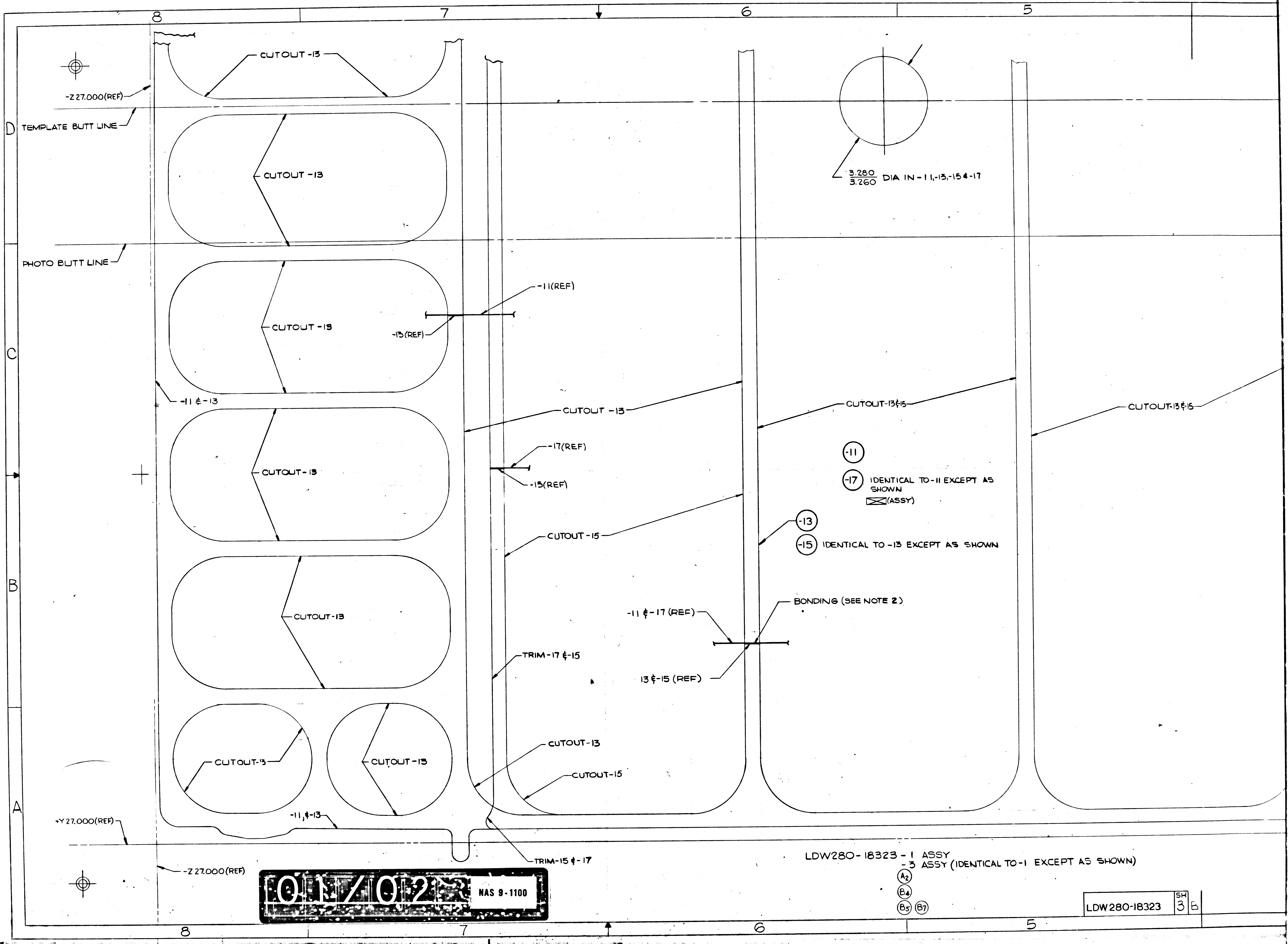
SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

EDMS90-18323 SH 3 A



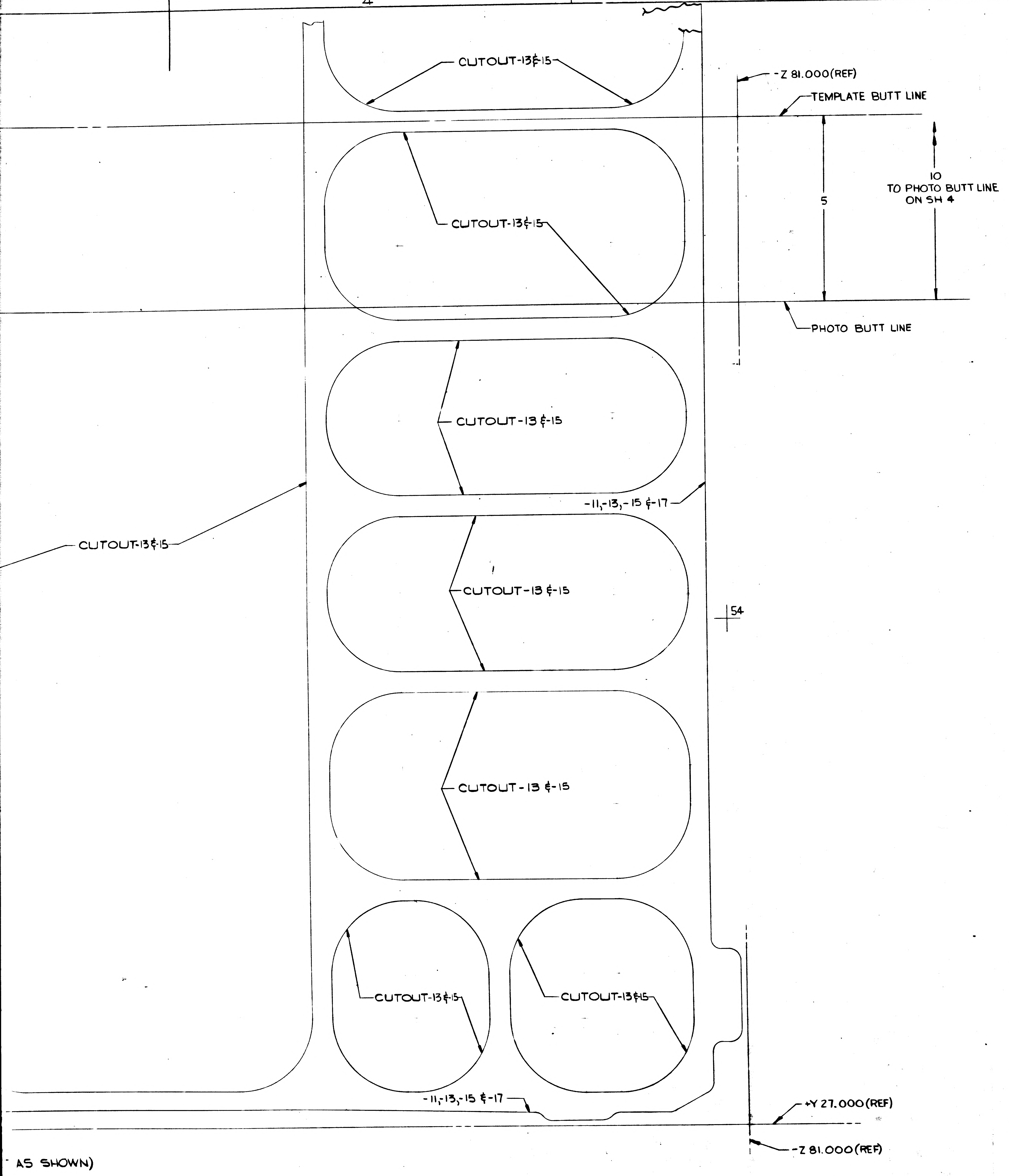
8
7
6
5
D
C
B
A
CUTOUT -13
-Z 27.000(REF)
TEMPLATE BUTT LINE
CUTOUT -13
PHOTO BUTT LINE
3.280 / 3.260 DIA IN -11,-13,-15 & -17
-11(REF)
CUTOUT -13
-13(REF)
-11 & -13
CUTOUT -13
CUTOUT-13&15
CUTOUT-13&15
-17(REF)
-15(REF)
CUTOUT-13
-11
-17 IDENTICAL TO -11 EXCEPT AS SHOWN
(ASSY)
CUTOUT -15
-13
-15 IDENTICAL TO -13 EXCEPT AS SHOWN
BONDING (SEE NOTE 2)
-11 & -17 (REF)
CUTOUT-13
TRIM -17 & -15
13 & -15 (REF)
CUTOUT-13
CUTOUT-13
CUTOUT-13
CUTOUT-15
+Y 27.000(REF)
-11 & -13
-Z 27.000(REF)
TRIM -15 & -17

LDW280-18323 -1 ASSY
-3 ASSY (IDENTICAL TO -1 EXCEPT AS SHOWN)

(A2)
(B4)
(B5) (B7)

01/02 NAS 9-1100

LDW280-18323	SH 3	B



NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. BOND -11,-13,-15 & -17 WITH FM 1000 PER LPC280-36.
3. a) DEOXIDIZE IN ACCORDANCE WITH LSP-14-7020 EXCEPT THAT IN PARA 3.3 ONLY THE "HEAVY-DUTY ALUMINUM DE-OXIDIZER SOLUTION" (NITRIC ACID - SODIUM SULPHATE) SHALL BE USED AND THE TOTAL IMMERSION TIME SHALL BE AS SPECIFIED IN d) BELOW
   b) CHROMIC ACID ANODIZE IN ACCORDANCE WITH LSP-14-9030 EXCEPT THAT REQUIREMENTS CONCERNING ANODIC FILM WEIGHT AND/OR CORROSION RESISTANCE SHALL NOT APPLY. THE TOTAL ANODIZING CYCLE TIME, INCLUDING VOLTAGE RUN-UP SHALL BE AS SPECIFIED IN d) BELOW.
   c) EMITTANCE MEASUREMENTS SHALL BE TAKEN ON BOTH SURFACES OF A FINISHED PART AND WITH A GIER-DUNKEL PORTABLE EMISSOMETER. THE SURFACES OF THE FINISHED PART SHALL HAVE AN AVERAGE TOTAL HEMISPHERICAL EMITTANCE OF 0.40 ± 0.10 @ 100°F
   d) PARTS WHOSE ENTIRE SURFACE IS IN THE "AS ROLLED CONDITION SHALL BE DEOXIDIZED FOR 15 ± 1 MINUTES & THEN CHROMIC-ACID ANODIZED FOR 38 ± 1/2 MINUTES. PARTS THAT HAVE BEEN ANODIZED & PROCESS SURFACE PROPERTIES OUTSIDE THE REQUIRED TOLERANCE MAY BE REWORKED BY DEOXIDIZING FOR 35-45 MINUTES & THEN CHROMIC ACID ANODIZING FOR 38 ± 1/2 MINUTES.
4. STOCK FOR -11,-13,-15 & -17 TO BE HAND SELECTED OR PURCHASED TO MEET THICKNESS TOLERANCE OF .020 ± .001.
5. "AT EDGE OF BONDED DOUBLERS, FM 1000 SQUEEZE-OUT MAY BE REMOVED, SUFFICIENT TO ALLOW THE APPLICATION OF A 1/8" MAXIMUM BEAD OF EC2216. CURE EC2216 PER LSP14-22500."

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING [illegible] D HOLES PER MIL-ST	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 96) = 24.0 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.0 SQ. FT.

PRINT TRIM LINE

02/02 NAS 9-1100

LDW280-18323 B

LDW280-18323 B

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-18323	B
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

③ K3

R. 26848

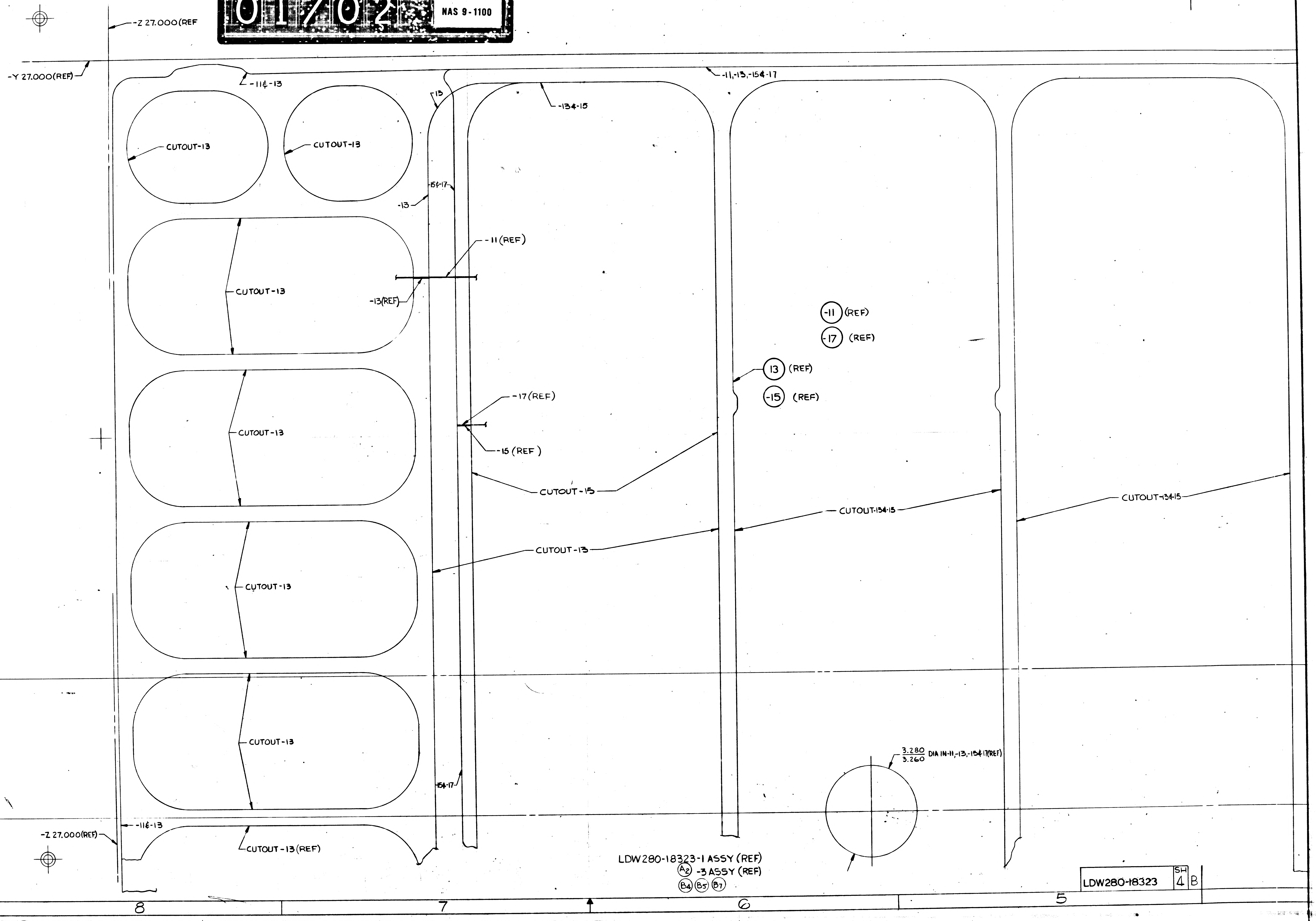
FOR PHOTO REPRODUCTION 2 FR

	SH	
LDW280-18323	3	B

1289

LDW280-18323 SH 4

01/02 NAS 9-1100



8
7
6
5
H
G
F
E
-Z 27.000 (REF
-Y 27.000 (REF)
-11 & -13
13
-11, -13, -15 & -17
-13 & -15
CUTOUT-13
CUTOUT-13
-15 & -17
-13
-11 (REF)
CUTOUT-13
-13 (REF)
-11 (REF)
-17 (REF)
13 (REF)
-15 (REF)
CUTOUT-13
-17 (REF)
-15 (REF)
CUTOUT-15
CUTOUT-13 & -15
CUTOUT-13 & -15
CUTOUT-13
CUTOUT-13
CUTOUT-13
3.280 / 3.260 DIA IN -11, -13, -15 & -17 (REF)
-15 & -17
-Z 27.000 (REF)
-11 & -13
CUTOUT-13 (REF)
LDW280-18323-1 ASSY (REF)
A2 -3 ASSY (REF)
B4 B5 B7

LDW280-18323	SH 4	B

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00 1.10		LCD1533			✓		IN-1 M/B N/A FOR DVT 70. LDW280-54523 WAS LSK280-11060, IN-1 M/B ADDED LTA-3 D/R (46) LDW280-54523, & ADDED SH 1.10	LTA-3 D/R DVT(70)	NOT	REQD	J. GARRAFFO		
	2	1.00, 2.00, 3.00 & 4.00							IN M/B, F/D & B/M ADDED -3, -15 & -17.	DVT(70) LM-3	NOT	REQD			
B	1	1.00 1.10					✓	EOB1 LCD1533	ADDED LTA-3 DR EFF FOR -1.	LTA-3 D/R	NOT	REQD	F. LASALA 11-6-68		
	2	3.00					✓	LE0280-664	ADDED NOTE # 5	LTA-3 D/R(46) LM-3 THRU LM-15, DVT(70)	NOT	REQD			
	3	1.00				✓		LE0280-701 LCD1997	CANCELLED BY LEO 280-780	LTA-3(13)	NOT	REQD			
	4	1.00, 2.00 3.00 4.00	6A	B		✓		LE0280-718 LCD1997	ADDED -3, IN -1 MOD BLK, REMOVED LM-7 THRU LM-15 REQMTS.	LM-7(37) THRU LM-15(45)	✓				
	5	1.10				✓		EOB5 LCD1997	REFERENCE EO-B4 CHG ON LE0280-718 "ADDED -5" WAS "ADDED -3".	LM-7(37) THRU LM-15(45)	✓				
	6					✓		LE0280-780 LCD2309	CANCELLED LE0280-701	LTA-3(13)		✓			
	7	1.00, 2.00 3.00 4.00	6A	B		✓		EOB7 LCD2309	REMOVED LM6 (36) REQMTS FROM -1 M/B REMOVED -5.	LM-6(36) THRU LM-15(45)		✓	H.D.		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	MAT'LS
A	—				
B	11/12/68				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18323	B

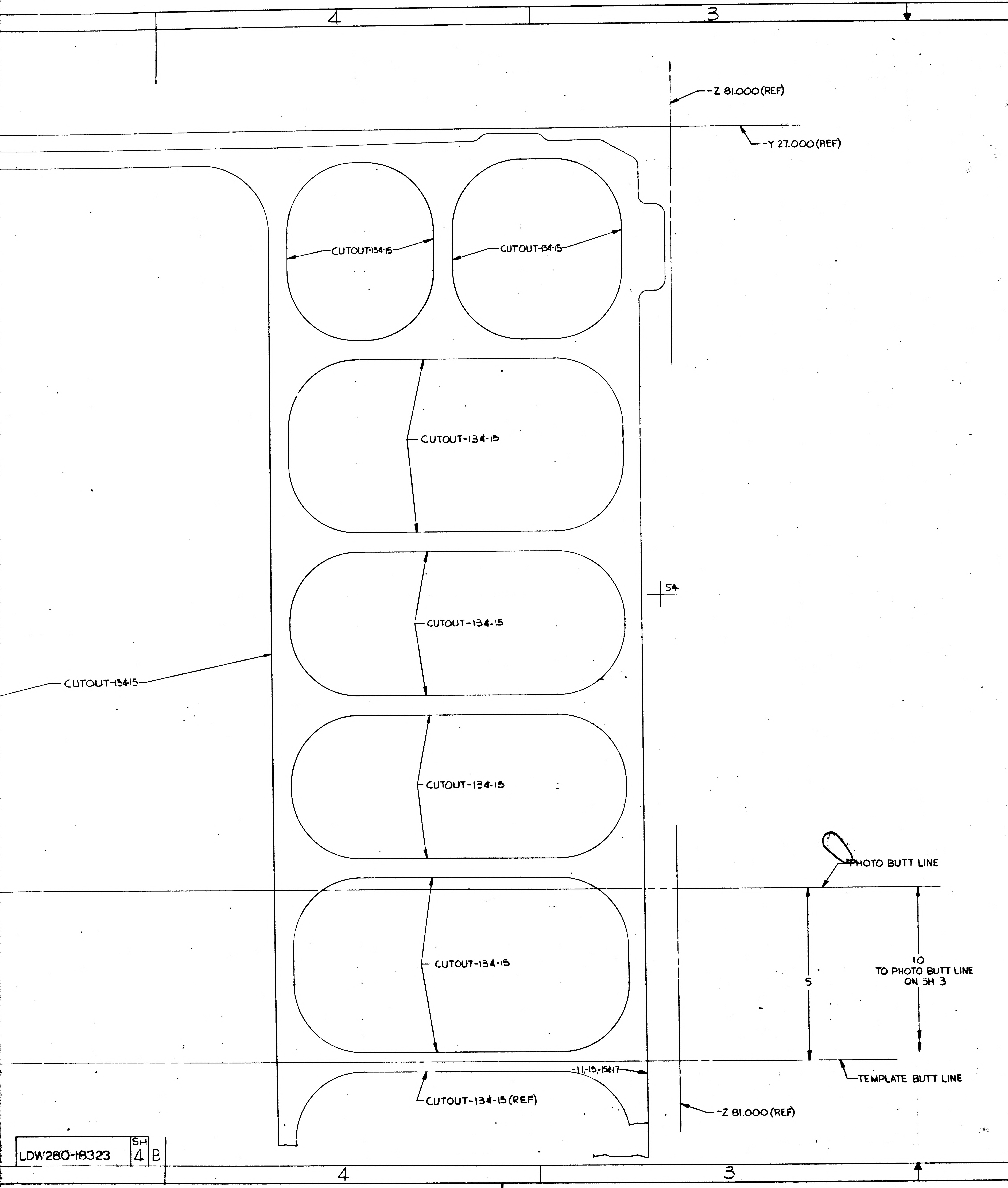
SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100


4
3
2
1
-Z 81.000 (REF)
-Y 27.000 (REF)
70
30
CUTOUT-134-15
CUTOUT-134-15
CUTOUT-134-15
CUTOUT-134-15
54
CUTOUT-134-15
CUTOUT-134-15
CUTOUT-134-15
PHOTO BUTT LINE
5
10
TO PHOTO BUTT LINE
ON SH 3
-11,-13,-15,-17
TEMPLATE BUTT LINE
CUTOUT-134-15 (REF)
-Z 81.000 (REF)
LDW280-18323
SH 4 B
4
3
2

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ⊠
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 96) = 24.0 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.0 SQ. FT.

PRINT TRIM LINE

H
G
F
E

LDW280-18323 B

LDW280-18323 B

02/02

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE J	CODE IDENT NO. 26512	LDW280-18323 B
LM MODEL OR END ITEM	SCALE FULL		SHEET 4.00

K3

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14-B-8P

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 664
CONTROL INFO NO. LM-3-5432

ADD NOTE * TO THE FOLLOWING DRAWINGS

DRAWING NO.	CHG.	TITLE	EFFECTIVITY
✓ LDW280-18320	B1	WEB-D.S.- R.H. UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15
✓ LDW280-18321	B1	WEB-D.S.- L.H. UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15
✓ LDW280-18322	B3	WEB-D.S.- FWD UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15
✓ LDW 280-18323	B2	WEB-D.S.- AFT UPPER DECK	LTA-3 D/R(46), LM-3 THRU LM-15, DVT(70)

NOTE * "AT EDGE OF BONDED DOUBLERS, FM 1000 SQUEEZE-OUT MAY BE REMOVED, SUFFICIENT TO ALLOW THE APPLICATION OF A 1/8" MAXIMUM BEAD OF EC 2216. CURE EC 2216 PER LSP14-22500."

* NEXT AVAILABLE NO.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: PROVIDE IMPROVED SEALING OF WEBS.

DESCRIPTION OF EO: ADDED NOTE TO DRAWING LISTED

GAEC EO RELEASE: C 3

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					BM		WRB	JCP
DATE	8/2/67				7-27-67	7-27-67	8/2/67	11/27/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 664

ISSUED BY LIAISON / VIC BOLLO X2151 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LE0280
EO NO. 701
CONTROL INFO NO. LDW280A9010

ADD EFF LTA-3(13) REQMTS & N/A TO THE FOLLOWING DWGS

	DWG Nº	* DASH Nº	TITLE	NEXT ASSY	TITLE	CHG Nº	REQ'D /MOD
✓	LDW280-18320	-1	WEB ASSY DES. STAGE R.H. UPPER DECK	LDW280-23520	DECK INSTL DESCENT STAGE R.H. UPPER DECK	B2	1
✓	LDW280-18321	-1	WEB ASSY (BONDED) DES.STAGE L.H. UPPER DECK	LDW280-23521	DECK INSTL DESCENT STAGE - L.H. UPPER DECK	B2	1
✓	LDW280-18322	-1 & -3	WEB ASSY - DES. STAGE FWD UPPER DECK	LDW280-23522	DECK INSTL DESCENT STAGE FWD UPPER	B4	1 EA
✓	LDW280-18323	-1	WEB - DESCENT STAGE AFT UPPER DECK	LDW280-23523	DECK INSTL DESCENT STAGE - AFT UPPER DECK	B3	1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1997 3

REASON FOR EO: INCREASE CRACK RESISTANCE OF WEBS

DESCRIPTION OF EO: ON - * ADDED LTA-3(13) EFF.

GAEC EO RELEASE: JK 9/7/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP NOT REQD

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONF
DATE	8/31/67 VD1			8/31/67	9/1/67		9/1/67	9/6/67

PRIORITY: C
DRAWING TITLE: SEE DRAWING (NOTED ABOVE)
DRAWING NO.: LE0280
EO NO.: 701

9/8
ISSUED BY J. ANDERSEN / J. STRAKOSCH X1153 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 718
CONTROL INFO NO. LDW280A 9287

ON THE FOLLOWING DWGS, ADD -* IDENTICAL TO -**, EXCEPT ON -*, I & T (S) & FINISH 'SEE NOTE ≠', WAS I & T (E) & FINISH 'Δ'. FOR -*, N/A & QTY IDENT TO -**. ON -**, REMOVE LM-7 (37) THRU LM-15 (45) REQMTS. IN F/D, ADD NOTE ≠.

DWG No.	* ADD	** REMOVE	Δ FINISH	CHANGE	DWG TITLE
✓ LDW280-18320	-5	-1	SEE NOTE 2	B3	WEB ASSY -D/S- RH-UPPER DECK
✓ -18321	-5	-1	SEE NOTE 3	B3	WEB ASSY-(BONDED) D/S-LH-UPPER DECK
✓ -18322	-7 -9	-1 -3	SEE NOTE 2	B5	WEB ASSY D/S FWD UPPER DECK
✓ LDW280 -18323	-3	-1	88	B4	WEB D/S -AFT- UPPER DECK

NOTE ≠: FINISH PER LPC280-43 PARA 4.5, 4.5.1, 4.6, 4.7, 5.0.

IN TITLE BLOCK, ADD LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

≠ USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD1997 | 3

REASON FOR EO: ADD SERIALIZATION & REFINE FINISH REQMTS (INCREASE CRACK RESISTANCE)

DESCRIPTION OF EO: ADDED -*, NOTE ≠ IN -** MOD/BLK, REMOVED LM 7 THRU 15 REQMTS

Ⓡ GAEC EO RELEASE: JK 9/26/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-7 (37) THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	9/23/67			9/21/67	9/21/67			9-26-67
B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C | DRAWING TITLE: SEE DWG (NOTED) | DRAWING NO.: LEO 280 | EO NO.: 718

9/27
ISSUED BY J. LANG/J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 780
CONTROL INFO NO. LDW280-B0133

THIS E.O. CANCELS LEO 280-701.

CANCELLED CHG. NO.	DRAWING NO.	TITLE	CANCELLING CHG. NO.	
B2	LDW280-18320	WEB ASS'Y~D/S R.H.~UPPER DECK	B4	✓
B2	LDW280-18321	WEB ASS'Y (BONDED) D/S~L.H.~UPPER DECK	B4	✓
B4	LDW280-18322	WEB ASS'Y~D/S FWD-UPPER DECK	B6	✓
B3	LDW280-18323	WEB~D/S AFT~UPPER DECK	B6	✓

(3)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2309

REASON FOR EO: REMOVAL OF WEIGHT

DESCRIPTION OF EO: CANCELLED LEO280-701

GAEC EO RELEASE: JK 11/1/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP ✓

APPROVED BY							
DATE	10/30/67			10-30-67	11/3-67		10/31/67
—	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

10-31-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 780

ISSUED BY J. BACKOFEN/P. THORJUSEN X1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 25
11-6-67

01

NAS 9-1100

LDW280-18324

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54522	LTA-3D/R(46)	2
	LDW280-54522	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
	LDW280-54522	LM-4(34)	2
LM	LDW280-53522	LM-3(33)	2

PART NO. LDW280-18324-19 | GAEC SCH NO. 51-3

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53522	LM-3(33)	1

PART NO. LDW280-18324-17 | GAEC SCH NO. 51-3

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53520	LM-3(33)	1
LDW280-18324-15			
LM	LDW280-53521	LM-3(33)	1
LDW280-18324-13			
LM	LSK280-11015	DVT(70)	3
LM	LDW280-53523	LM-3(33)	1

PART NO. LDW280-18324-11 | GAEC SCH NO. 51-3

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO.	JK(001)		
207	MP-14	6/14/7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT ☐

CLASS II ENGRG CHANGE ✓

CLASS I ENGRG CHANGE ☐

LCD-1533

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	V.NARONIS 6-9-67	RELIABILITY	
LAYOUT BY	G.ZEMAN		
CHECKED BY	J.COBB 6-12-67		
GR.LEADER	6/9/67		
VEH.DES.INT	6/9/67		
STRUCTURES	WPG WJU 6/12/67	PROJ ENGR	H. Wright 6-12-67
STRUCTURES	6/12/67	REL GROUP	6/13/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESENT STAGE-UPPER DECK-SPLICE

SIZE	CODE IDENT NO.	
B	26512	LDW280-18324

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18324-19	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.040 x 2 x 3	NONE	88	
								-17	↕	WEB	↕	↕	↕	.040 x 4 x 54	NONE	88	
								-15	↕	WEB	↕	↕	↕	.040 x 4 x 54	NONE	88	
								-13	↕	WEB	↕	↕	↕	.040 x 4 x 54	NONE	88	
								LDW280-18324-11	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.040 x 4 x 54	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18324

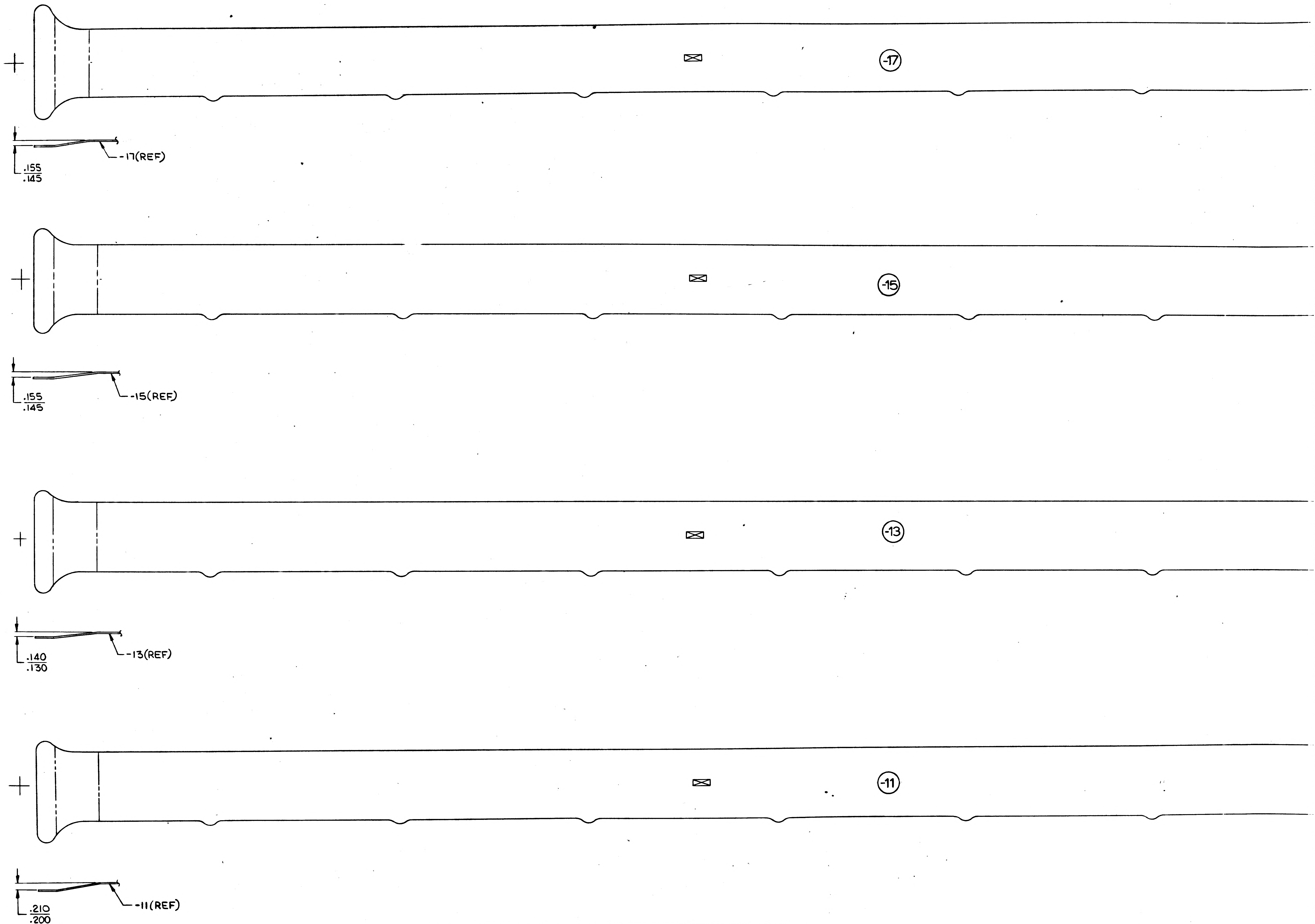
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


-17
-17(REF)
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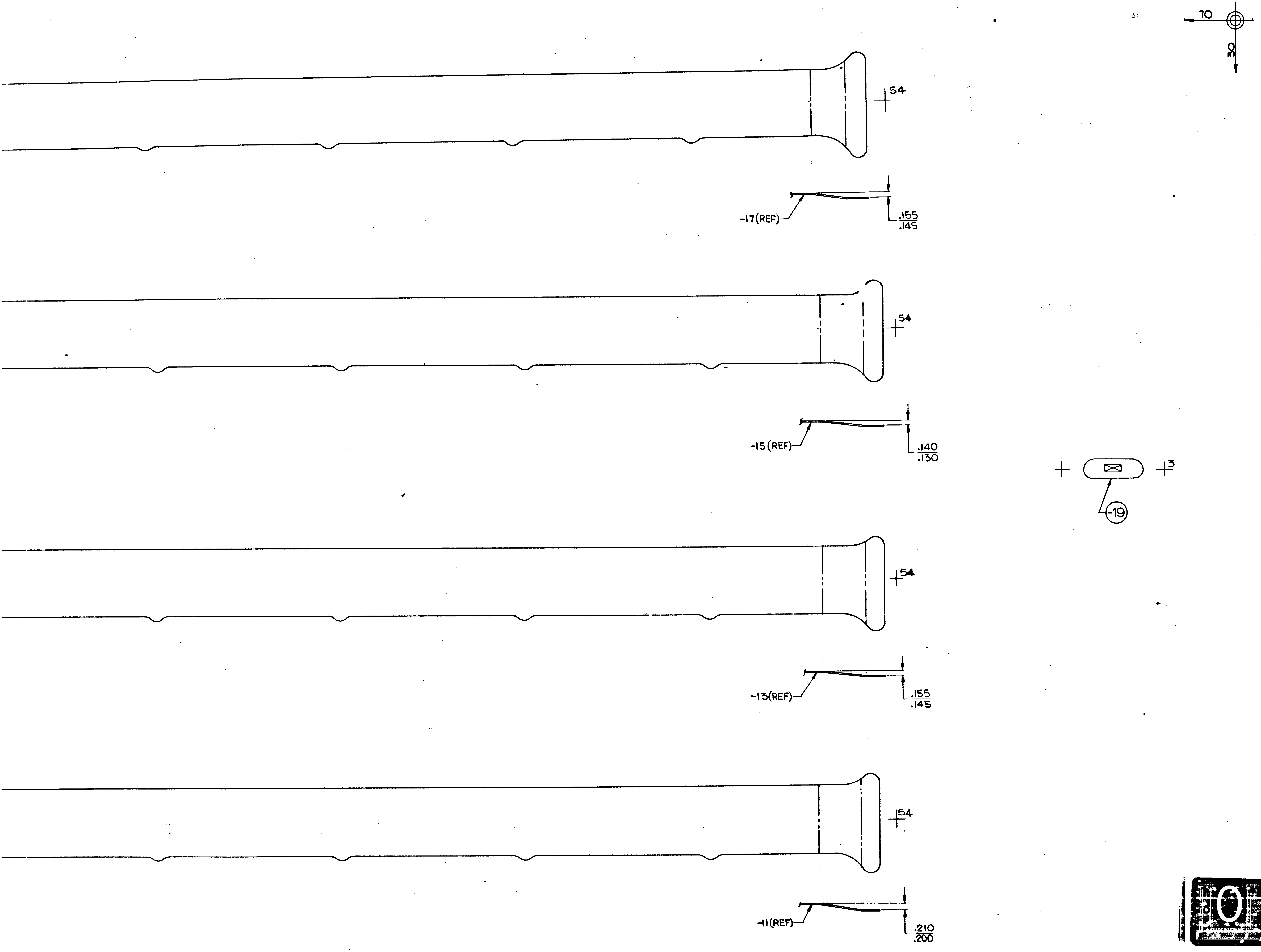
01/02 NAS 9-1100

LDW280-18324 SHEET 3

TRAM O.K.
7.L 6-5-67



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

DWG SIZE 34x 88
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 101) = 25.25 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 6.3 SQ. FT.
PRINT TRIM LINE

D
C
B
A

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FOR -11, -13, -15 & -17
   - a) DEOXIDIZE IN ACCORDANCE WITH LSP14-7020 EXCEPT THAT IN PARA 3.3 ONLY THE "HEAVY-DUTY ALUMINUM DE-OXIDIZER SOLUTION" (NITRIC ACID-SODIUM SULPHATE) SHALL BE USED AND THE TOTAL IMMERSION TIME SHALL BE AS SPECIFIED IN d) BELOW
   - b) CHROMIC ACID ANODIZE IN ACCORDANCE WITH LSP14-9030 EXCEPT THAT REQUIREMENTS CONCERNING ANODIC FILM WEIGHT AND/OR CORROSION RESISTANCE SHALL NOT APPLY. THE TOTAL ANODIZING CYCLE TIME, INCLUDING VOLTAGE RUN-UP SHALL BE AS SPECIFIED IN d) BELOW.
   - c) EMITTANCE MEASUREMENTS SHALL BE TAKEN ON BOTH SURFACES OF A FINISHED PART AND WITH A GIER-DUNKEL PORTABLE EMISSOMETER. THE SURFACES OF THE FINISHED PART SHALL HAVE AN AVERAGE TOTAL HEMISPHERICAL EMITTANCE OF 0.40±0.10 @ 100°F
   - d. PARTS WHOSE ENTIRE SURFACE IS IN THE "AS ROLLED CONDITION SHALL BE DEOXIDIZED FOR 15±1 MINUTES AND THEN CHROMIC-ACID ANODIZED FOR 38±1/2 MINUTES. PARTS THAT HAVE BEEN ANODIZED AND PROCESS SURFACE PROPERTIES OUTSIDE THE REQUIRED TOLERANCE MAY BE REWORKED BY DEOXIDIZING FOR 35-45 MINUTES AND THAN CHROMIC ACID ANODIZING FOR 38±1/2 MINUTES.

LDW280-18324

LDW280-18324

02/02

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18324	
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO | REPRODUCTION 2FR K2

ENG 73-7 6-64

LDW280-18324	SHEET 3

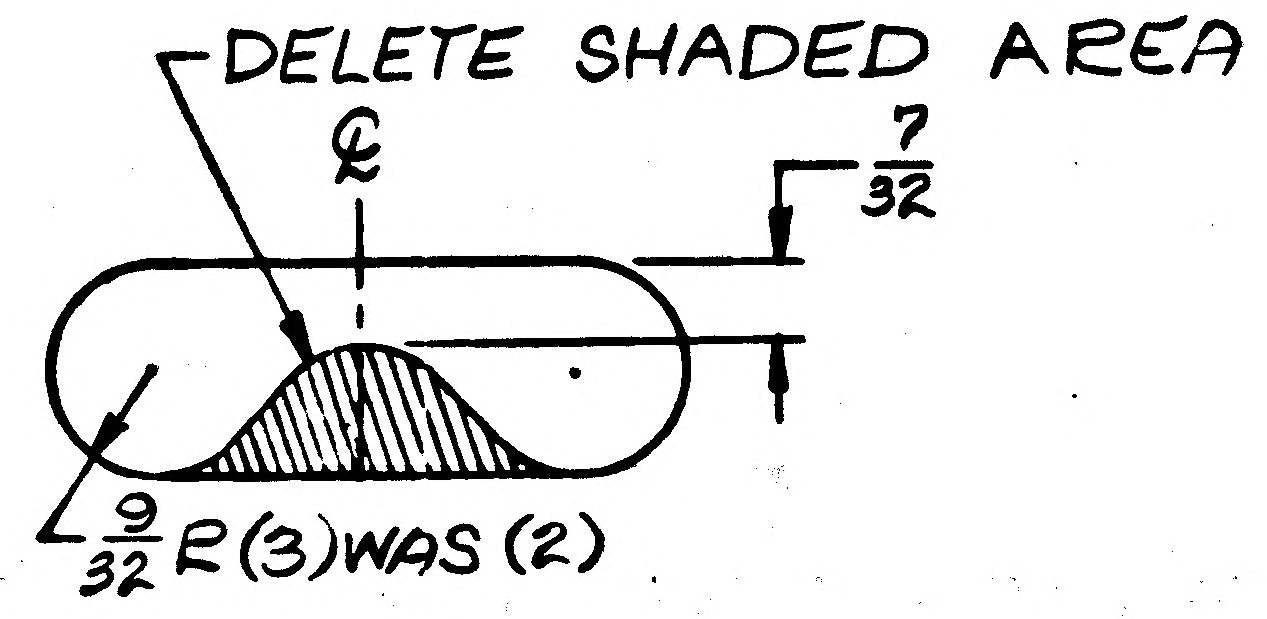
my

ENG 32.1 REV 3-66

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18324 | EO NO. A1
CONTROL INFO NO. LM-2-3710



IN FLD/DWG, FOR -19 DOUBLER, TRIM PART AS SHOWN

FOR REWORK OF EXISTING PARTS, BRUSH ALODINE (FINISH #76) TRIMMED EDGE.

TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
FAILURE OF LTA-3 DURING STATIC TEST REQUIRES REWORK OF UPPER DECK WEB	IN FLD/DWG, REVISED TRIM OF -19.	JK

02025

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU LM-15(45)	
		LTA-3DR(46)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY				—	DV			
DATE	7/21/67			—	7/10/67	7/7/67	7/21/67	7/11/67
7-3-67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB~DESCENT STAGE UPPER DECK~SPLICE	LDW280-18324	A1

ISSUED BY LIAISON J. MALONEY 7/3/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18324
EO NO. A2
CONTROL INFO NO. LDW280B0071

FOR-19, ADD LTA-3(13) REQMTS FOR N/A
LDW280-23522 (2 REQD/MOD).

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 2309

REASON FOR EO: SHIM NEEDED TO REPLACE REMOVED MATL.

DESCRIPTION OF EO: FOR-19, ADDED LTA-3 REQMTS FOR N/A LDW280-23522 (2 REQD/MOD)

GAEC EO RELEASE: JK 11/9/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	11/8/67			11-8-67	11/8/67		11/8/67	11-8-67
B	VD1							

PRIORITY: C
DRAWING TITLE: WEB DESCENT STAGE-UPPER DECK-SPLICE
DRAWING NO.: LDW280-18324
EO NO.: A2

11-10
ISSUED BY S. TAMRES/P. THORJUSEN x 7033 SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1654
CONTROL INFO NO. LDW280B7660

FOR *: N/A LDW280-60522 WAS LDW280-54522 FOR LM-10(40) THRU LM-14(44), ADD LTA-11(23) & LTA-3DR/1(460) EFFECTIVITY FOR N/A LDW280-60522 (QTY REMAINS THE SAME AS THAT OF LM-10(40)). [illegible]

[illegible]

PART NO. *	DWG NOMENCLATURE	CHANGE NUMBER
LDW280-17600-11	SEE DWG	
-17601-15 & -17		B7
		B6
-18324-19		
LDW280	SEE DWG	A4

[illegible]

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3890 PKG 52, Pg. 1 & 3

REASON FOR EO: REDESIGN OF UPPER DECKS FOR EXTENDED PROP. TANKS

DESCRIPTION OF EO: ON * N/A LDW280-60522 WAS LDW280-54522 FOR LM-10(40) THRU LM-14(44), ADDED LTA-11(23) & LTA-3DR/1(460) EFFECTIVITY,

(5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
		LM-14(44) LTA-11(23)	
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)
PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO. 1654

APPROVED BY							
DATE	8-19-69			8/18/69	8/18/69		8/19/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

GAEC EO RELEASE
SB 8/26/9
VK 8/29/9
8/29/69

8-22-69 W. HOPTON P. THORJUSEN X-1227 7-30-69 VDT

GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18325 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-15	1EA
↕	↕	THRU	
LM	LDW280-54791	LM-5(35)	1EA
PART NO. LDW280-18325-15 &-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-4(34)	1
LM	LDW280-52791	LM-3(33)	1
LM	LDW280-52791	LM-2(32)	1
PART NO. LDW280-18325-13		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00						
REV	A	A	A	A						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REL^C INFO A	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-17	207	ME-1A 3/26/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°

E	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 1767	

OK

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	HERB. SCHWETER 9/26/67	RELIABILITY	
LAYOUT BY	P. MARTELLO		
CHECKED BY	D. FASS 9-26-67		
GR LEADER	10-3-67		
VEH DES INT	10/3/67		
STRUCTURES	10/4/67	PROJ ENGR	10/3/67
STRUCTURES	10/5	REL GROUP	10/5/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE~GSE CONNECTOR
SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18325	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

CDR = 10/20

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED SH 3.00 NO. CHG LAST REV NO CHG "D" SIZE WAS "C" SIZE - ADDED SH 1.10 - E REGELMAN 3-14-69						
A	1	1.00, 1.10, 2.00 & 3.00							INC EO A1	LM-2			REGELMAN 3-14-69 Joe B		3-26-69
	2	3.00							INC EO A2	THRU					
	3	3.00							INC EO A3	LM-15					
	4	3.00							INC EO A4						
	5	1.00, 2.00 & 3.00		P				②	INC EO A5 F2	LM-5 THRU LM-15					

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
	A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18325	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18325-17	E	BRACKET	AL ALY SH	QQ-A-250/12	7075	.032 × 3 × 5	T6	88	
		LDW280-18325-15	E	CLIP	AL ALY SH	QQ-A-250/12	7075	.032 × 3 × 3	T6	88	
		LDW280-18325-13	E	BRACKET	AL ALY SH	QQ-A-250/12	7075	.032 × 5 × 11	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18325	A

SCALE NONE SHEET 2.00

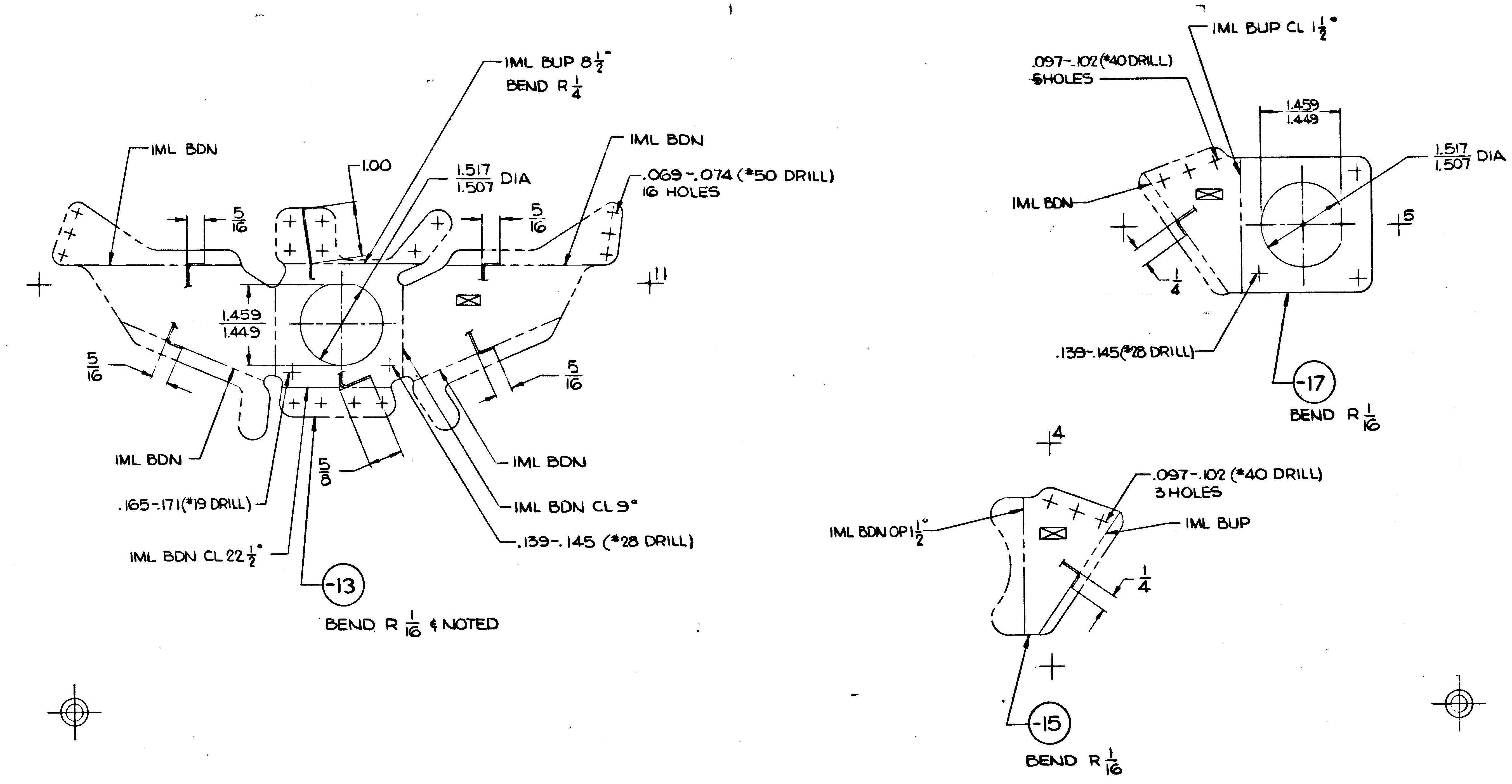
ENG 77.2 7-65

01 NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTE:

1. NO TOOLING HOLES PERMITTED IN PARTS.



25
15
IML BUP $8\frac{1}{2}°$
BEND R $\frac{1}{4}$
IML BDN
1.00
$\frac{1.517}{1.507}$ DIA
IML BDN
.069-.074 (#50 DRILL)
16 HOLES
$\frac{5}{16}$
$\frac{5}{16}$
$\frac{1.459}{1.449}$
$\frac{5}{16}$
$\frac{5}{16}$
11
IML BDN
$\frac{5}{8}$
IML BDN
.165-.171 (#19 DRILL)
IML BDN CL 9°
.139-.145 (#28 DRILL)
IML BDN CL $22\frac{1}{2}°$
-13
BEND R $\frac{1}{16}$ & NOTED
IML BUP CL $1\frac{1}{2}°$
.097-.102 (#40 DRILL)
5 HOLES
$\frac{1.459}{1.449}$
$\frac{1.517}{1.507}$ DIA
IML BDN
5
$\frac{1}{4}$
.139-.145 (#28 DRILL)
-17
BEND R $\frac{1}{16}$
4
.097-.102 (#40 DRILL)
3 HOLES
IML BDN OP $1\frac{1}{2}°$
IML BUP
$\frac{1}{4}$
-15
BEND R $\frac{1}{16}$

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18325	A
SCALE FULL		SHEET 3.00	

3 SUPERSEDES LDW280-18325 NO CHG 5-14-69 2 FOR PHOTO REPRODUCTION 1 K2

01 NAS 9-1100

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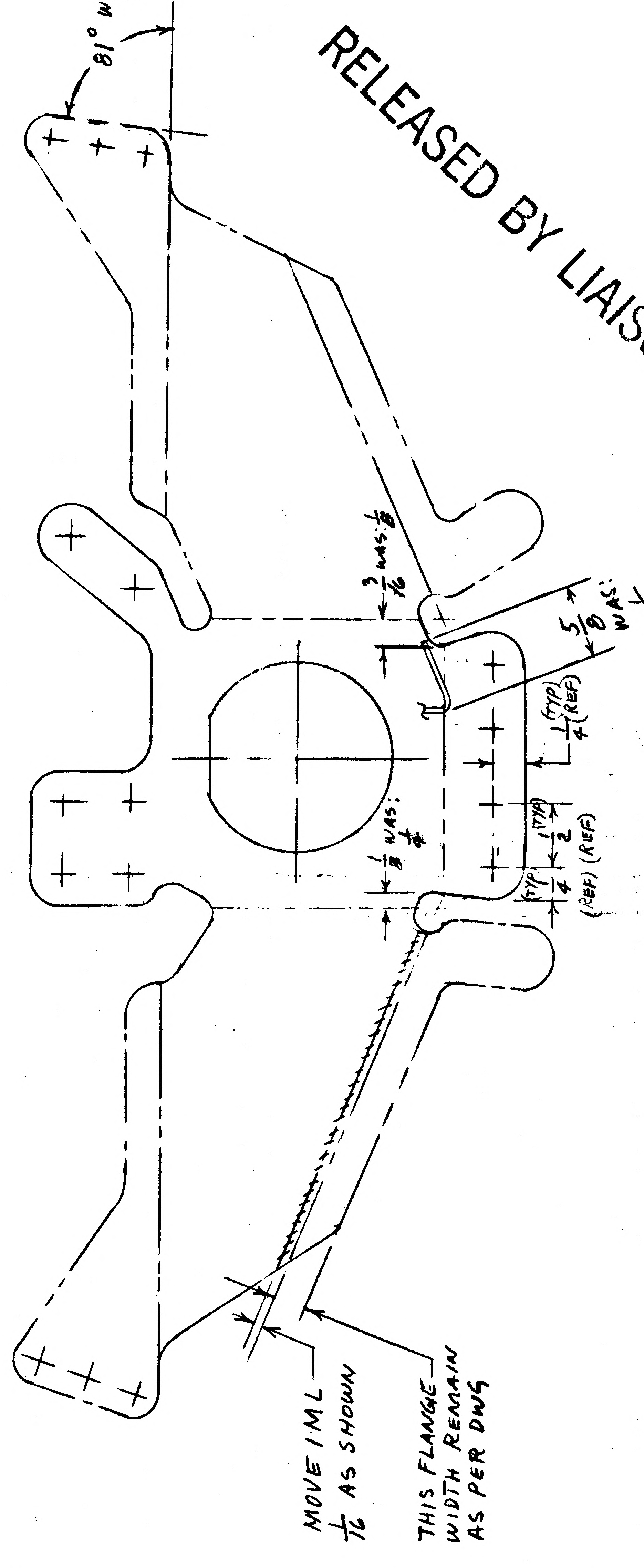
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18325	EO NO. A1	CONTROL INFO NO.	LM-5-17127

IN FLD/DWG, B/M, & M/B:
CREATE -13 SAME AS -11 EXCEPT AS SHOWN:
DELETE -11 ON LM-2 & LM-3 N/A LDW280-52791 (1) PER MOD.
ON LM-4 THRU LM-15 N/A LDW280-54791 (1) PER MOD.
ADD -13 ON LM-2 & LM-3 N/A LDW280-52791 (1) PER MOD.
ON LM-4 THRU-15 N/A LDW280-54791 (1) PER MOD



RELEASED BY LIAISON

DIMENSIONS NOT TO BE INCLUDED ON DWG, FOR MANUFACTURING ONLY

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

5

REASON FOR EO	DESCRIPTION OF EO	® GAEC EO RELEASE
① DIMENSIONAL CORRECTION ② INCREASE MAT'L FOR PROPER FASTENER EDGE DISTANCE	IN FLD, B/M & M/B CREATED -13 DELETED -11	JK OAG

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY								
✓			-11	DATE	10/19/67				10-16-67	10/16/67	10/19/67	10/17/67
				10-13-67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

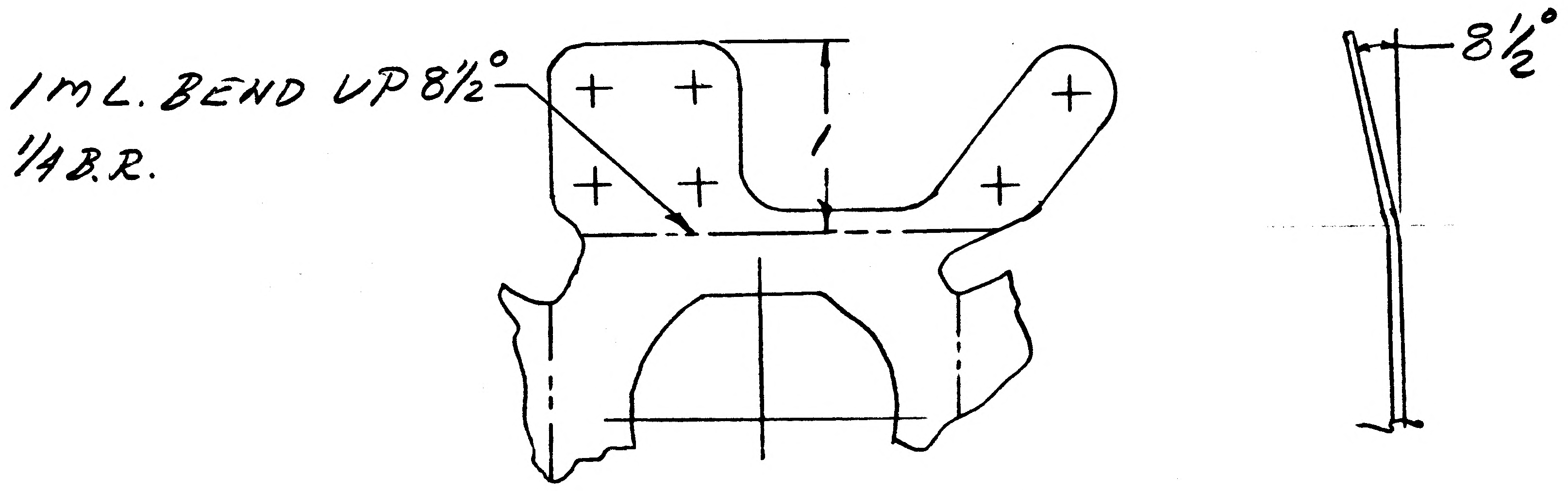
PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DESCENT STAGE - GSE CONNECTOR BRACKET SUPPORT	LDW280-18325	A1

ISSUED BY LIAISON, P. HUSTED, 86755 SECTION V D I GROUP NO. 395 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18325
EO NO. A2
CONTROL INFO NO. LM-5-17191



LDW280-18325-13

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO FIT MATING PART.

DESCRIPTION OF EO: ADDED 8½° BEND TO -13.

GAEC EO RELEASE: JC

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ · RECORD EO
DISPOSITION OF PARTS: REWORK ✓ · SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~
APPROVED BY				—		CH		
DATE	11/4/67			—	10-30-67	10-26-67	11/4/67	10-30-67
	VDI							

PRIORITY: C
DRAWING TITLE: BRACKET D/S-GSE CONNECTOR SUPPORT
DRAWING NO.: LDW280-18325
EO NO.: A2

ISSUED BY LIAISON J. JARVIS SECTION VDI GROUP NO. 335 PL 25

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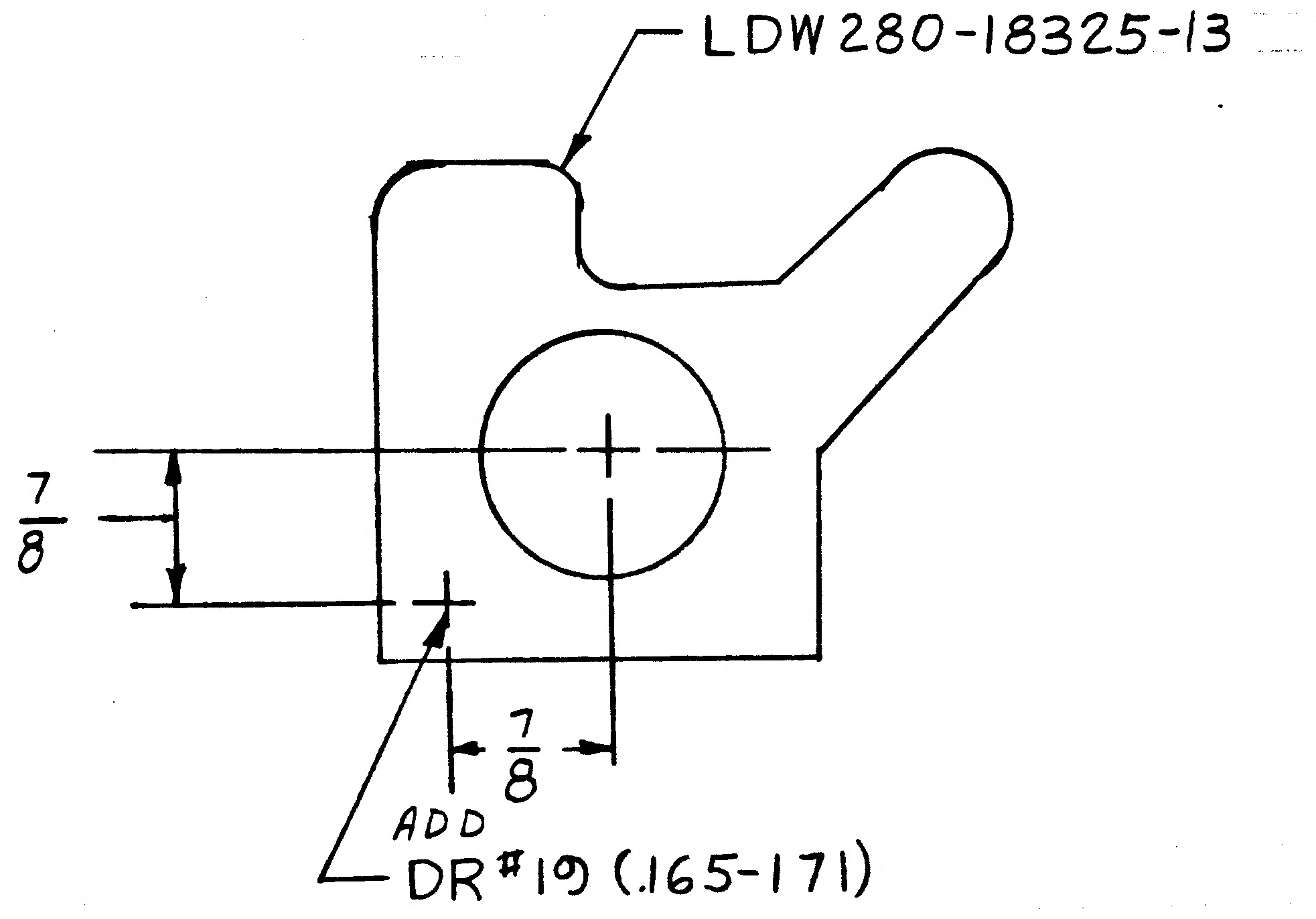
NAS 9-1100

ENG RELEASED BY LIAISON

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18325		EO NO. A3
CONTROL INFO NO. LM5-13666		



DIM NOT TO BE INCLUDED ON DWG, FOR MFG USE ONLY

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG ☐

REASON FOR EO: PROVIDE HOLE FOR GROUND STUD

DESCRIPTION OF EO: ON-13 ADDED DR#19 (165-171) (1)

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2 (32)	
		THRU	
		LM15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	JMJ			—	DV	DV	JMB	
DATE	11/1/67			—	11/1/67	11/1/67	11/1/67	11-1-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET DESCENT STAGE ~ GSE CONNECTOR	LDW280-18325	A3

ISSUED BY ROSADO 86455 SECTION EQUIP LINES GROUP NO. 332 PL 5

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NAS 9-1100

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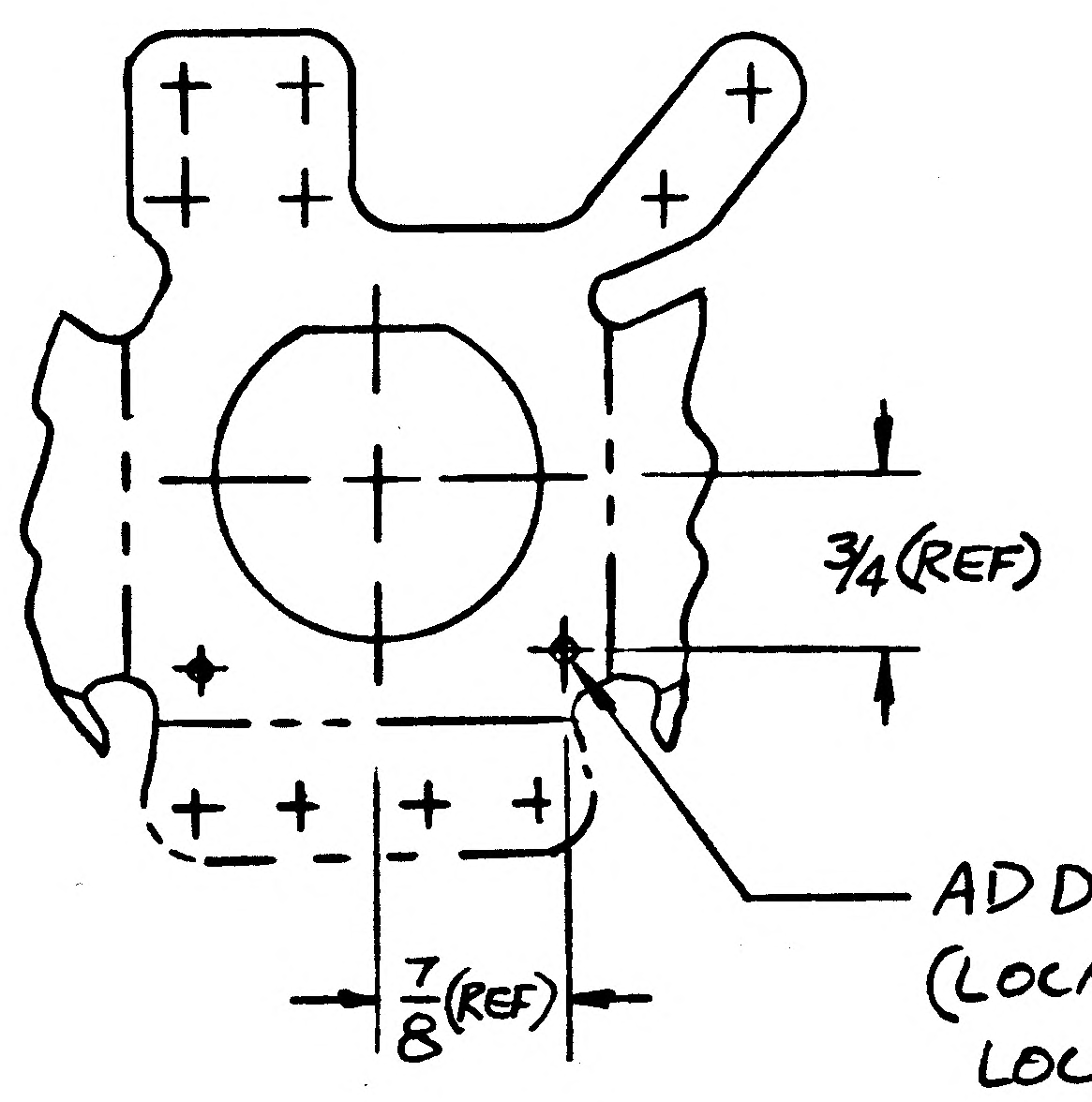
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18325
EO NO. A4
CONTROL INFO NO. LM-2-4282



ADD #28 (.139-.145) HOLE TO -13 (LOCATION TO BE IDENTICAL TO LOCATION OF #19 HOLE ON -11)

LDW280-18325-13

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

REASON FOR EO: HOLE REQ'D FOR CHAIN RETAINING HARDWARE

DESCRIPTION OF EO: ADDED #28 (.139-.145) HOLE IN -13

GAEC EO RELEASE: JK (2)

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓		✓		DATE	12/11/67			—	12/11/67	12/9/67	12/11/67	12-11-67
								—	MBS	EWB		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S-GSE CONNECTOR SUPPORT	LDW280-18325	A4

ISSUED BY LIAISON E V BERGEMAN X-3604 SECTION EPS/VEDE/AWG GROUP NO. 332 PL 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 EO NO. 1521
CONTROL INFO NO. LDW280B 8109

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 ~~(40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18272	SEE DWG	B 2
273		B 2
281		A 5
283		B 2
286		B 3
290		B 2
313		B 3
316		A 2
325		B 2
LDW280-18326	SEE DWG	B 2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 29 & 30 & 92 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69
JK 8/8/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					N		Bauman
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8/1/69		8-7-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1521

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18325
EO NO. B3
CONTROL INFO NO. LDW280B8567

IN B/M FOR -15 & -17:

RESTRICT EFF TO LM-5(35) THRU LM-9(39)

WAS

LM-5(35) TO LM-14(94) & LTA-11(23)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	1 LCD3994 PKG 81 (5)

REASON FOR EO: POWER CONNECTOR RELOCATED

DESCRIPTION OF EO: FOR -15 & -17: RESTRICTED EFF TO LM-5(35) THRU LM-9(39) WAS LM-5(35) THRU LM-14(44) & LTA-11(23)

GAEC EO RELEASE: SUB 9-4-69; JK 9/17/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
		LM-14(44)	
		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

APPROVED BY	PST				n/a			
DATE	9-10-69			9/9/69	9/11/69		9/16/69	9-17-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S GSE CONNECTOR SUPPORT	LDW280-18325	B3

CDR 9/5/69
ISSUED BY M.SHAPIRO X86046 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~[illegible]~~ APPD
											REWORK	SCRAP			
A	1	1.00 1.10 2.00 3.00					✓	EO A1 LCD1548	EO. A1 INITIAL DWG RELEASE PARTS MADE PER EO.	LM 2 (32) THRU LM15 (45)	NOT	REQD	J. HARAN 7-25-67		8/2/67
	2	2.00 3.00					✓	EO A2 LCD-1548 Ⓜ	REF EO A1; ADDED 1" DIM ON -13, MATL FOR -11 & -13 WAS TITANIUM SH, MIL-T-9046, 6Al-4V DWG CORR.						

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-66

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18326	A
SCALE NONE			SHEET 1.10

Ⓐ

01

NAS 9-1100

LDW280-18326 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52574	LM15(45)	1EA.
		LM14(44)	1EA.
		LM13(43)	1EA.
		LM12(42)	1EA.
		LM11(41)	1EA.
		LM10(40)	1EA.
		LM9(39)	1EA.
		LM8(38)	1EA.
		LM7(37)	1EA.
		LM6(36)	1EA.
		LM5(35)	1EA.
		LM4(34)	1EA.
		LM3(33)	1EA.
LM	LDW280-52574	LM2(32)	1EA.
PART NO. LDW280-18326-11&-13		GAEC SCH NO. 52	

WORK PKG FUNCTION NO.110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO A

PRIM NO. 207 IK(001) MP-16P 8/7/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE ✓

CLASS I ENGRG CHANGE

LCD 1548

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY J. HARAN 7-25-67

LAYOUT BY G. BARNES

CHECKED BY

~~GROUP LDR~~

VDI 8/2/67

STRUCTURES 8/3/67

STRUCTURES

WEIGHTS

RELIABILITY

PROJ ENGR D.A. McCloughan 8/5/67

REL GROUP 8/7/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE-LANDING RADAR
REFLECTOR STRUT-THERMAL

SIZE B | CODE IDENT NO. 26512 | LDW280-18326 | A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18326-13	E	PLATE	TITANIUM SH.	MIL-T-9046	6Al-4V	.030 × 2 × 13	NONE	NONE	
						TYPE III	COND ST				
		LDW280-18326-11	E	PLATE	TITANIUM SH	COMP C	OR COND STA	.030 × 2 × 16	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

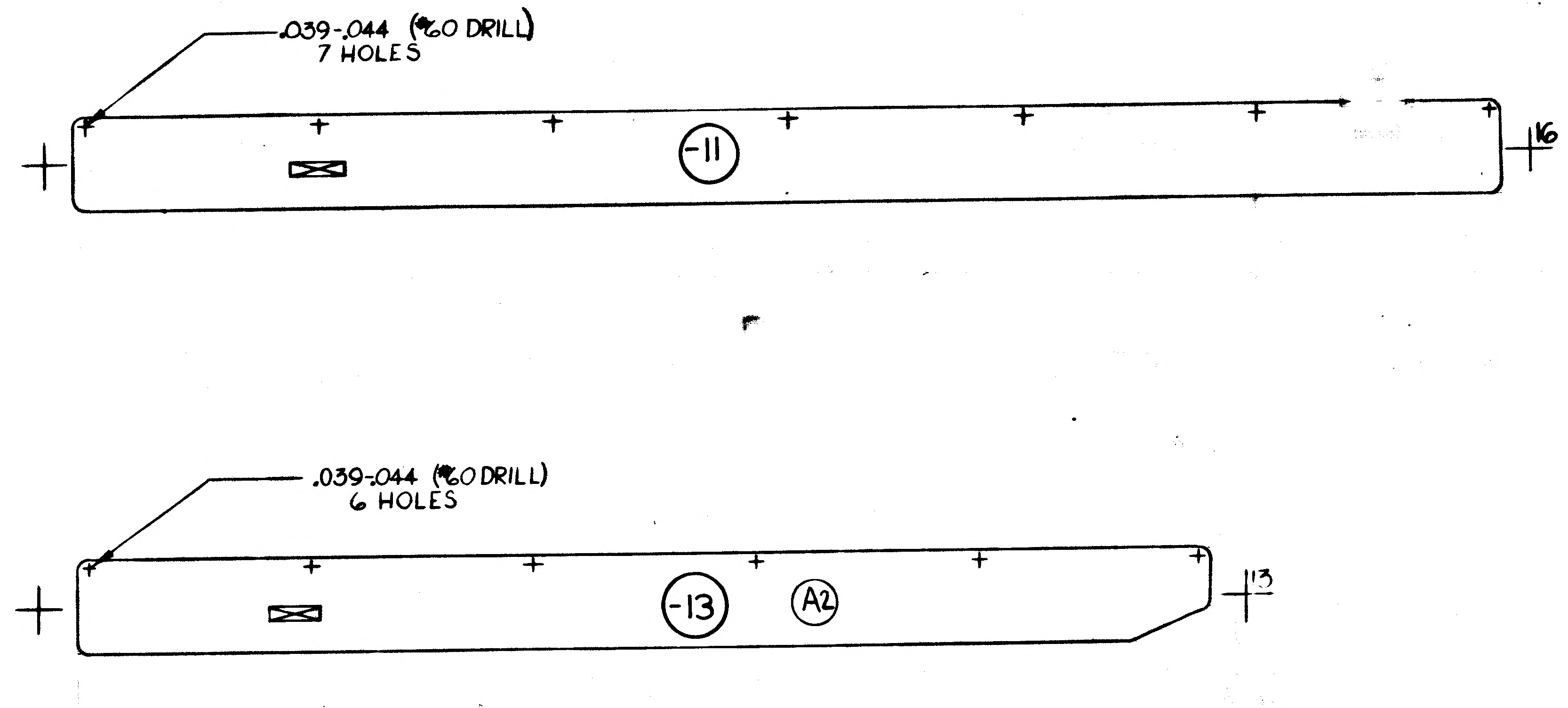
SIZE B | CODE IDENT NO. 26512 | LDW280-18326 | A Ⓐ

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

LDW280-18326 A

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18326	A
MODEL OR END ITEM	SCALE FULL		SHEET 300	

2 FOR PHOTO REPRODUCTION 1 K2

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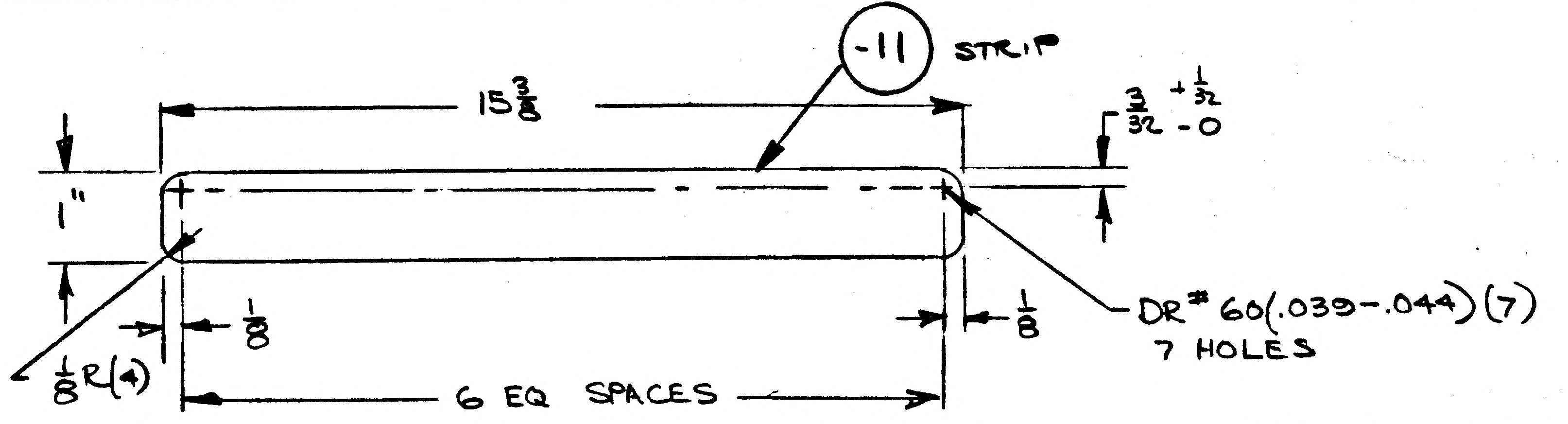
NAS 9-1100

ENG 32.1 REV 3-65 (A)

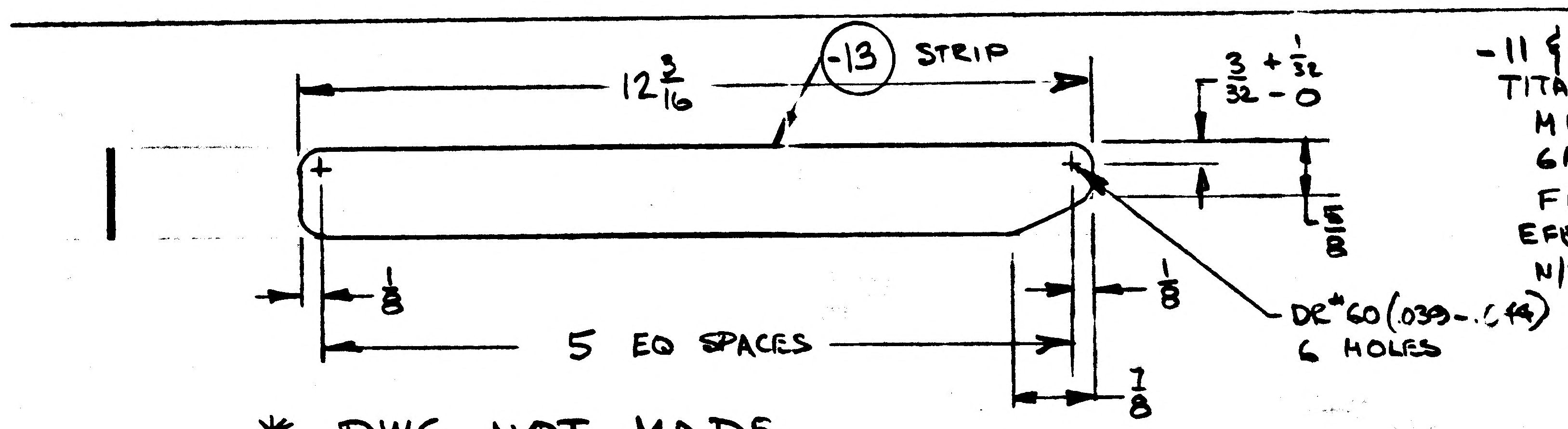
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGIN' ""ING ORDER *

DWG. NO. LDW280-18326		EO NO. A1
CONTROL INFO NO. LDW280A 7076		



-11 STRIP
15 3/8
3/32 +1/32 -0
1"
1/8
1/8 R (4)
1/8
6 EQ SPACES
DR# 60(.039-.044) (7)
7 HOLES



-13 STRIP
12 3/16
3/32 +1/32 -0
5/8
1/8
1/8
5 EQ SPACES
7/8
DR# 60 (.039-.044)
6 HOLES

-11 & -13 MATL: .030
TITANIUM SH
MIL-T-9046
6AL-4V
FIN NONE
EFF LM 2 → 15
N/A LDW280-52574
1EA/MOD
I&T-E

* DWG NOT MADE

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 1548 CDR 7/14/67 (5)

REASON FOR EO: THERMAL INSULATION ON LWR STRUTS OF LDG RADAR REFLECTOR LCD 1548

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

(R) GAEC EO RELEASE C: SK 7/19/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 2 (32) THRU	LM-15 (45)

DRAWING CHANGE REQD	DISPOSITION OF PARTS			APPROVED BY									
NOT REVISE DWG	REQD RECORD EO	* REWORK	SCRAP	DATE	7/14/67			7/13/67	7/17/67		7/19/67	7-18-67	
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE DESCENT STAGE LANDING RADAR REFLECTOR STRUT - THERMAL	LDW780-18326	A1

ISSUED BY G. BARNES / J. STRAKOSCH X1153 SECTION VD I GROUP NO. 335 PL 25

01 NAS 9-1100

C

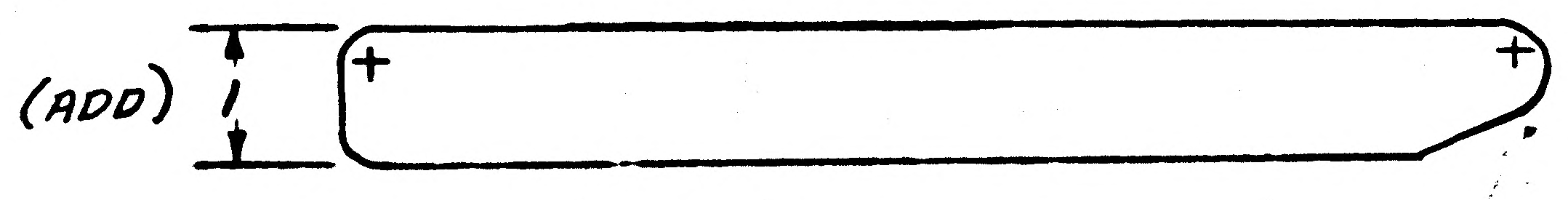
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18326
EO NO. A2
CONTROL INFO NO. LM-5-15673

THIS IS A REVISION OF EO A1

ADD THE FOLLOWING MISSING DIM. ON -13



MAT'L INFO FOR -11 &' -13 IS INCOMPLETE - S/B TITANIUM SH., 6A1-4V, MIL-T-9046, TYPE III, COMP. C, COND. ST OR STA.

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1548

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
THERMAL INSULATION ON LWR STRUTS OF LDG. RADAR REFLECTOR LCD 1548	REF EO A1, ADDED 1 DIM ON -13, MAT'L FOR -11 & -13 WAS TITANIUM SH., MIL-T-9046, 6A1-4V.	VK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓		NOT	REQ'D	DATE	7/21/67			7-21-67	7/21/67	7/21/67	7/21/67
REVISE DWG	RECORD EO	REWORK	SCRAP		YDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE - D/S - LANDING RADAR REFLECTOR STRUT - THERMAL	LDW280-18326	A2

ISSUED BY LIAISON - J. McGILL X-86226 SECTION YDI GROUP NO. 280 PL. 25

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NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280		EO NO. 1521
CONTROL INFO NO. LDW280B 8109		

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18272	SEE DWG	B2
✓ 273		B2
✓ 281		A5
✓ 283		B2
✓ 286		B3
✓ 290		B2
✓ 313		B3
✓ 316		A2
✓ 325		B2
✓ LDW280-18326	SEE DWG	B2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 29 & 30 & 92 (5)

REASON FOR EO	DESCRIPTION OF EO	(R) GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQMTS	8-6-69 SK 8/8/9

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.					DATE	7-29-69			7/29/69	N 8/2/69		Bauman 8-7-69	
LM		LTA-11 ([redacted])		✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
		(23)		PRIORITY C	DRAWING TITLE SEE DRAWINGS							DRAWING NO. LEO 280				EO NO. 1521

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

LDW280-18328

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25536	LTA-5D(15)	1EA

PART NO. LDW280-18328-17-19-21

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25528	LTA-5D(15)	1

PART NO. LDW280-18328-23

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25534	LTA-5D(15)	1
PART NO. LDW280-18328-15		GAEC SCH NO. 51-4	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25530	LTA-5D(15)	1
PART NO. LDW280-18328-13		GAEC SCH NO. 51-4	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25537	LTA-5D(15)	1
PART NO. LDW280-18328-11		GAEC SCH NO. 51-4	

WORK PKG FUNCTION NO. 111 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	
LAST DASH NO. USED	-23

GRUMMAN REL INFO

PRIM NO.	JK(001)		
207	MP-16-	8/22/7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	✓
CLASS I ENGRG CHANGE	✓

LCD 1866
OK

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	H. SCHWETER 8-17-67	RELIABILITY	
LAYOUT BY	J. ANDERSEN		
CHECKED BY	D. FASS 8-18-67		
GR. LEADER	8/18/67		
VEH DES INT	C Pusateri 8/18/67		
STRUCTURES	NM FB 8/19/67	PROJ ENGR	
STRUCTURES	Hilderman 8/21/67	REL GROUP	67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLERS
DESCENT STAGE ~ BEAM PANELS

SIZE	CODE IDENT NO.		
B	26512	LDW280-18328	
SCALE	NONE	SHEET 1.00 OF 3	

COR 8/25/67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18328-23	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.063 × 4 × 65	T6	88	
		-21	↕	DOUBLER	↕	↕	7075-T6	.040 × 2 × 63	NONE	↕	
		-19	↕	↕	↕	↕	7075	.063 × 3 × 63	T6	↕	
		-17	↕	↕	↕	↕	7075-T6	.063 × 3 × 4	NONE	↕	
		-15	↕	↕	↕	↕	↕	.100 × 5 × 65	↕	↕	
		-13	↕	↕	↕	↕	↕	.063 × 3 × 65	↕	↕	
		LDW280-18328-11	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.063 × 6 × 65	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

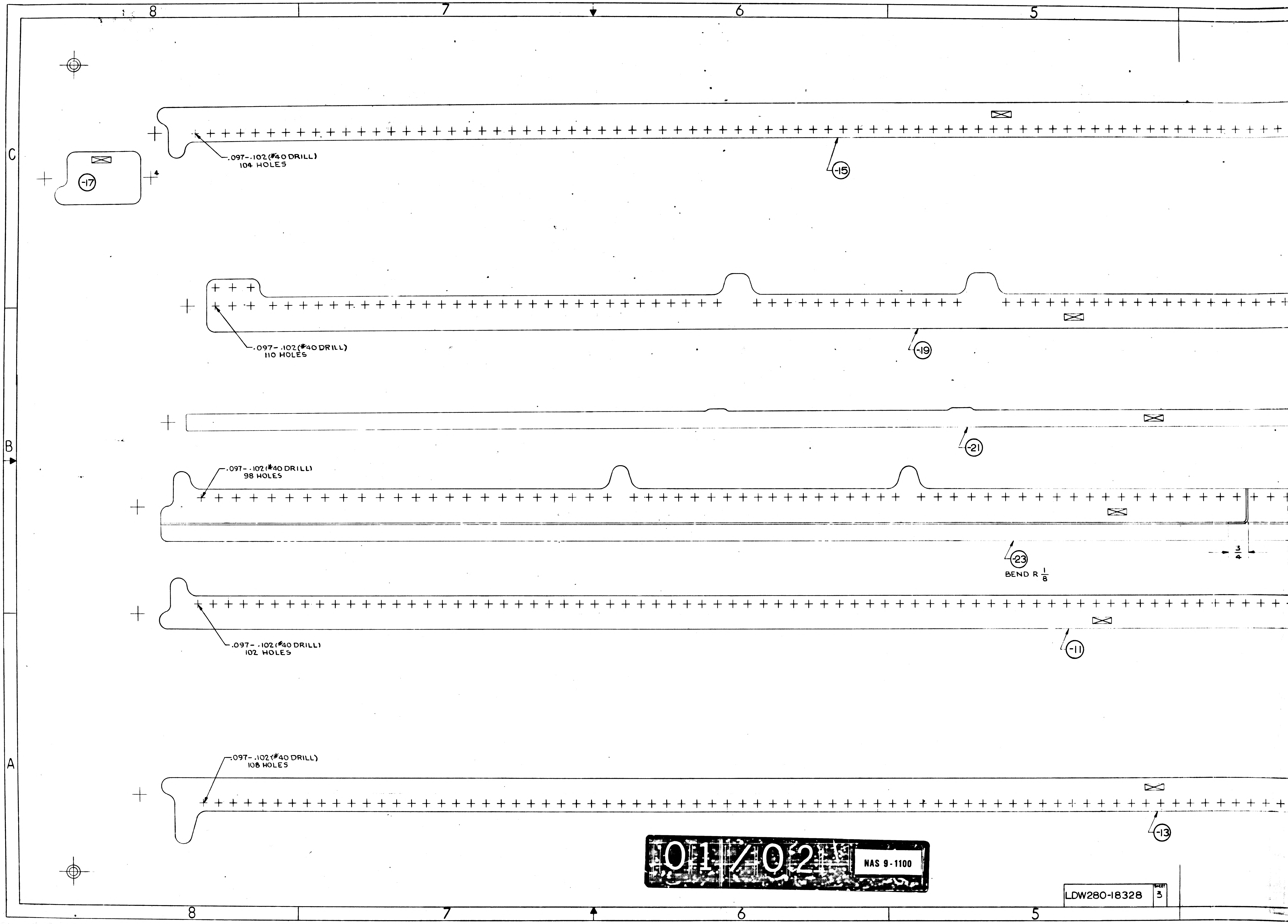
SIZE	CODE IDENT NO.	
B	26512	LDW280-18328

SCALE NONE

SHEET 2.00

01

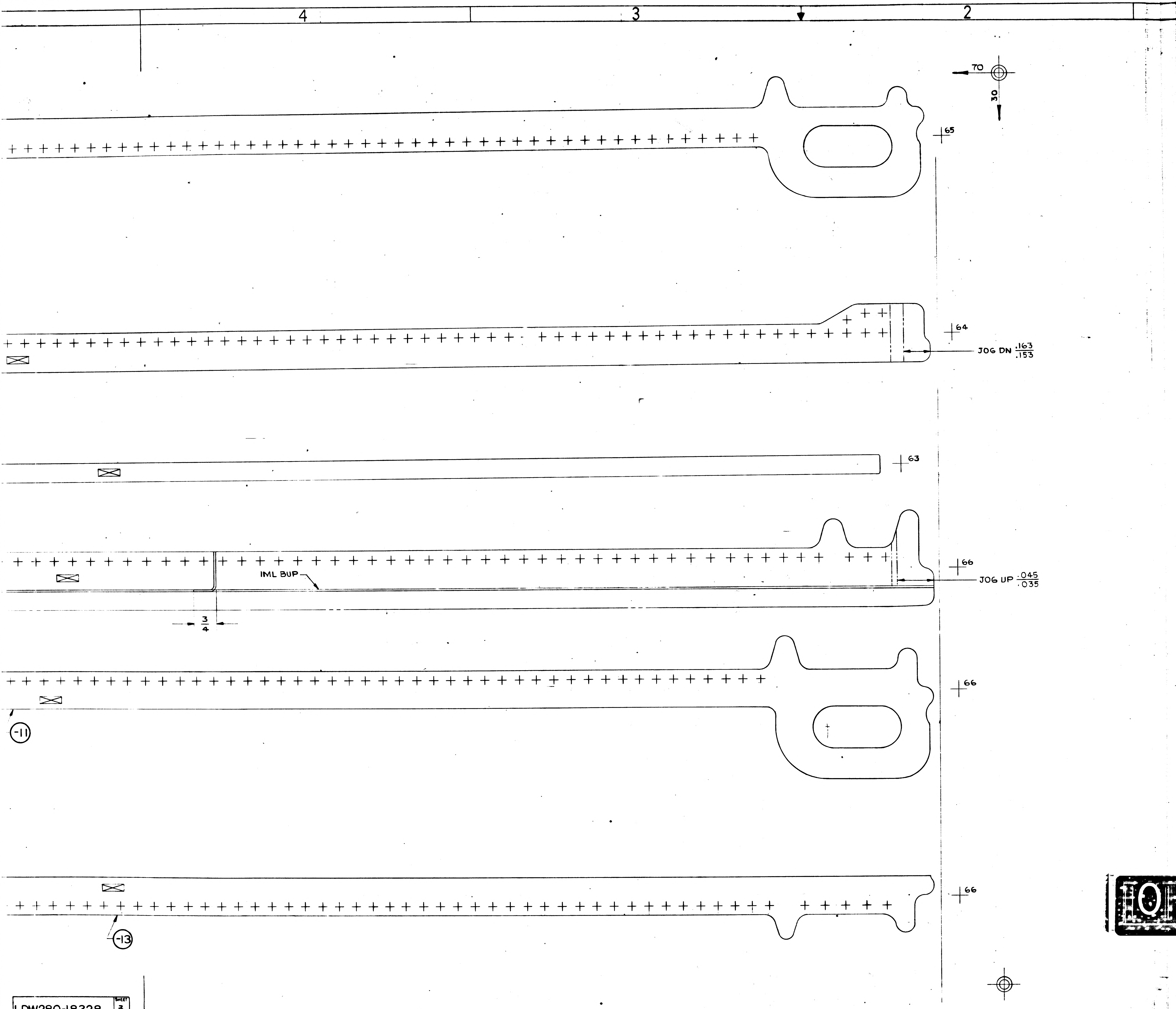
NAS 9-1100


8
7
6
5
C
B
A
.097-.102(#40 DRILL)
104 HOLES
-15
-17
.097-.102(#40 DRILL)
110 HOLES
-19
-21
.097-.102(#40 DRILL)
98 HOLES
-23
BEND R $\frac{1}{8}$
$\frac{3}{4}$
.097-.102(#40 DRILL)
102 HOLES
-11
.097-.102(#40 DRILL)
108 HOLES
-13

01/02 NAS 9-1100

LDW280-18328 SHEET 3

TRIM OK & OVERLAY TL 8.8.67
VS 8-14-67



NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	√

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90) —— 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) —— 5.625 SQ. FT.

PRINT TRIM LINE

LDW280-18328

LDW280-18328

02/02

NAS 9-1100

LDW280-18328	SHEET 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	J	26512	LDW280-18328
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION K2

2FR

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.0C 1.10 3.00		LMF420-2370-003		✓		EO∆1 LCD 1244 CCA 667	ON -19 ADDED BD. DN. (ADDED SHEET NO. 1.10)	LM-3(33) THRU LM-15(45) SER.#1	✓		D. STELLABOTTE 5-6-68		
	2	1.00 2.00 3.00		P LFM420-2370-003		✓		EO∆2 LCD 1244 CCA 667	ADDED -23 & -25 & REMOVED -15 & -17			-15 & -17			
	3	3.00		LFM420-2370-003		✓		EO∆3 LCD 1244 CCA 667	ON -23 & -25 2 7/16 WAS 1 7/16		✓				
	4	1.00 2.00 3.00		LFM420-2370-003		✓		EO∆4 LCD 1244 CCA 667	IN FLD, B/M, & MOD/BLK ADDED -27	LM-3(33) SER#1	NOT	REQ'D			
	5	1.00	S			✓		LEO-280-887 LCD-1244 CCA 667	IN MOD/BLK FOR LFM420-2370-003, LDW420-2370 SER#1 ON-11, -13, -21, -23 & -25 N/A LDW280-53503 QTY 2 EA WAS 1 EA. ON-9 N/A LDW280-53501 QTY(2) WAS (1).	SER#1	NOT	REQ'D			
	6	3.00		LFM420-2370-003		✓		EO∆6 LCD 1244 CCA 667	IN FLD (ON-23 & -25) REVISED TRIM	LM-3(33) THRU LM-15(45) SER#1	✓				
	7	1.00		LFM420-2370-003		✓		EO∆7 LCD 1244 CCA 667	IN MOD/BLK (ON-23 & -25) N/A LDW 280-53501 (WAS) LDW280-53503		✓				
	8	1.00		T&U				EO∆8 LCD 2567	RESTRICTED -11, -13, -19, -23 & -25 TO LFM420-2370-003 LDW420-2370 S/N#1, LM3(33), LM-4(34) & LM-5(35) WAS LFM 420-2370-003 LDW420-2370 S/N#1 LM-3(33) THRU LM-15 (45)	LM-6(36) THRU LM-15(45)		✓	H.D.		

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-66

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18330	A
SCALE NONE			SHEET 1.10

01

NAS 9-1100

LDW280-18330 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM420-2370-003			
LDW420-2370	LDW280-53501	SER#1	2
LM	LD 280-53503	LM-3(33)	1
PART NO. LDW280-18330 -27			
LDW420-2370-003			
LDW420-2370	LDW280-53503	SER#1	2 EA
LM	↕	LM-5(35)	1 EA
LM	↕	LM-4(34)	1 EA
LM	LDW280-53503	LM-3(33)	1 EA
PART NO. LDW280-18330-11 & -13			
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM420-2370-003			
LDW-420-2370	LDW280-53501	SER#1	2
LM	LDW280-53501	LM-5(35)	1
LM	LDW280-53501	LM-4(34)	1
LM	LDW280-53501	LM-3(33)	1
PART NO. LDW280-18330-19, -23 & -25		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LDW420-2370-003			
LDW420-2370	LDW280-53503	SER#1	2
LM	↕	LM-15(45)	1
LM	↕	THRU	
LM	LDW280-53503	LM-3(33)	1
PART NO.- LDW280-18330-21			
PART NO.		GAEC SCH NO. 52	

WORK PKG FUNCTION III (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00				
REV	A	A	A	A				
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-27	PRIM NO. 207	JK(CC) ME 3A 11/20/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.010 ±1/2°
S ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1244 CCA667

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	T.MACAULAY 9/19/67		
LAYOUT BY	D.RAGAS DR 9-21-67		
CHECKED BY	9.19.67		
GR LEADER	9/23/67		
VEH DES INT	9/23/67		
STRUCT	NM W 9/25/67	PROJ ENGR	9/26/67
STRUCT	9/25	REL GROUP	9-27-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE - QUAD III
BATTEN SUPPORT ~ FITH

SIZE B
CODE IDENT NO. 26512
LDW280-18330 A
SCALE NONE
SHEET 1.00 OF 4

G 77.1 12-65

CDR 10-6-67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18330-27	E	STRAP	AL ALLOY SH	QQA-250/12	7075-T6	.062X2X7	NONE	88	
		-25		DOUBLER				.040X4X6	NONE	88	
		-23						.032X4X6	NONE	88	
		-21					7075-T6	.032X3X3	NONE	88	
		-19					7075	.032X4X5	T6	88	
		-13					7075-T6	.040X3X3	NONE	88	
		LDW280-18330-11	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.032X3X3	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18330	A

SCALE NONE SHEET [illegible]

ENG 77.2 7-65

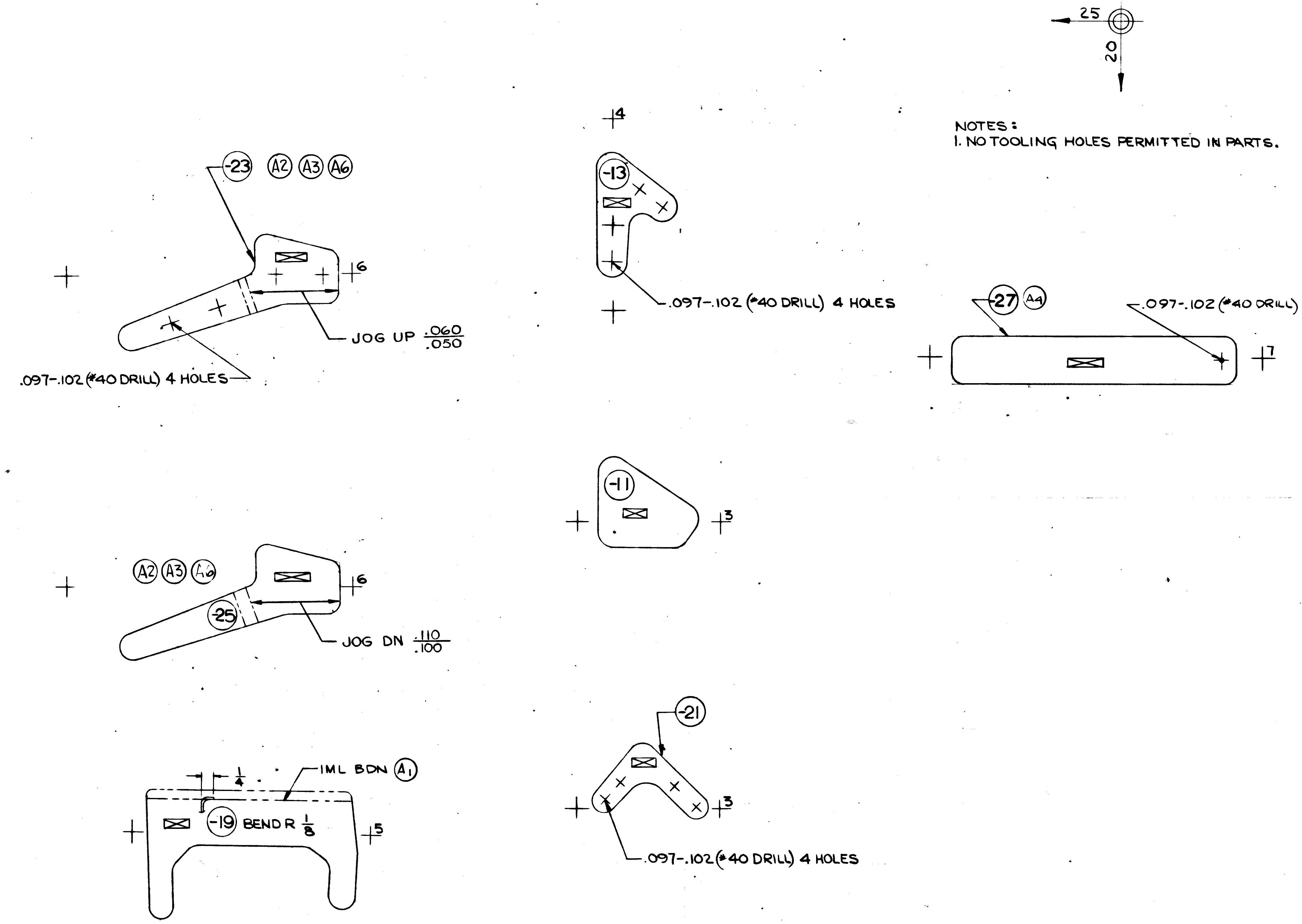
01

NAS 9-1100

LDW280-18330 A

TRAM OK 9/18/67

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



25
20
-23
A2
A3
A6
6
JOG UP .060/.050
.097-.102 (#40 DRILL) 4 HOLES
4
-13
.097-.102 (#40 DRILL) 4 HOLES
-27
A4
.097-.102 (#40 DRILL)
7
-11
3
A2
A3
A6
-25
6
JOG DN .110/.100
-21
3
.097-.102 (#40 DRILL) 4 HOLES
1/4
IML BDN
A1
-19
BEND R 1/8
5

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18330A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE D	CODE IDENT NO. 26512	LDW280-18330	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

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101

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
G 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 1340
CONTROL INFO NO. LDW280B7427

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18316	✓	A1	SEE DWG
-18317	✓	B1	
-18324	✓	A3	
-18325	✓	B1	
-18326	✓	B1	
-18330	✓	B1	
-18332		B2	
-18340		A5	
-18342		A4	
LDW280-18343		A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: JK 4/16/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1340

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280

EO NO. 1806

CONTROL INFO NO. LDW280B9552

FOR THE FOLLOWING DWGS AND DASH NOS.*NOTED CHANGE NEXT ASSEMBLIES FOR LM-10 (40) THRU LM-14 (44) (QTY REMAINS THE SAME)

DWG NO. *	TITLE	ORIG NEXT ASSY**	NEW NEXT ASSY***	CHANGE NO.
LDW280-18330-21	SEE DWG	LDW280-53503	LDW280-60503	B2
LDW280P18609-11 P18609-13	SEE DWG	LDW280-53503	LDW280-60503	A2
LDW280P18329-25	SEE DWG	LDW280-53503	LDW280-60501	B4
LDW280-53504-3	SEE DWG	LDW280-58553	LDW280-60553	B8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 58 (5)

REASON FOR EO: MODIFICATION FOR LARGER PROPELLANT TANKS

DESCRIPTION OF EO: FOR * NEXT ASSY *** WAS NEXT ASSY ** EFF. LM-10(40) THRU LM-14(44)

GAEC EO RELEASE: ALB 12-30-69; JK 1/5/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REWORK / REQD SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					NM			Bauman
DATE	12-23-69			12/22/69	12/23		12/23/69	1/5/70

PRIORITY: C

DRAWING TITLE: SEE DWGS

DRAWING NO.: LEO 280

EO NO.: 1806

CDR 010970

ISSUED BY V.A. CHRISTINA SECTION VDI X87222 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18332 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LFM 420-2370-003			
LDW-420-2370	LDW420-2386	SERIAL#1	4
LM	LDW280-54608	LM-15(45)	2
↑	↑	LM-14(44)	↑
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
	↓	LM-5(35)	
↓	LDW 280-54608	LM-4(34)	↓
LM	LDW280-53608	LM-3(33)	2
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18332-11		GAEC SCH NO.	

LFM420-2370-003			
LDW-420-2370	LDW280-53504	SERIAL#1	2 EA
LM	LDW280-53504	LM-15(45)	1 EA
↑	↑	LM-14(44)	↑
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
↓	↓	LM-4(34)	↓
LM	LDW280-53504	LM-3(33)	1 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18332-21 & -23		GAEC SCH NO. 50-1	

WORK PKG FUNCTION NO.110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00				
REV	A	A	A	A				
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -25

GRUMMAN REL INFO A

PRIM NO. JK(001) -207 ME-3H 11/29/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

P ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE √
LCD-1244 (CCA 667)
CK

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A LITVINOFF 9-25-67	RELIABILITY	
LAYOUT BY	V.CHRISTINA	WEIGHTS	
CHECKED BY	D.FASS 9-27-67		
GR LEADER	9/29/67		
VEH DES INT	9/29/67		
STRUCTURES	NM 9/29/67	PROJ ENGR	W.R. 9/29
STRUCTURES	9/29	REL GROUP	9/30/67
LDW420-2370)			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT
DESCENT STAGE QUAD CHECK
MODULE FITH SHIELD COVER

SIZE	CODE IDENT NO.		
B	26512	LDW280-18332	A
SCALE	NONE	SHEET1.00 OF 3	

ENG 77.1 12-65

CDR 10/6

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18332-23	E	SUPPORT	AL ALLOY SH	QQ-A-250/4	2024-0	.050×2×4	T 42	88	
		LDW280-18332-21	E	SUPPORT	AL ALLOY SH	QQ-A-250/4	2024-0	.050×2×4	T 42	88	
		LDW280-18332-11	E	SUPPORT	AL ALLOY SH	QO-A250/4	2024-0	.050×2×6	T 42	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T 42	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18332	A

SCALE NONE

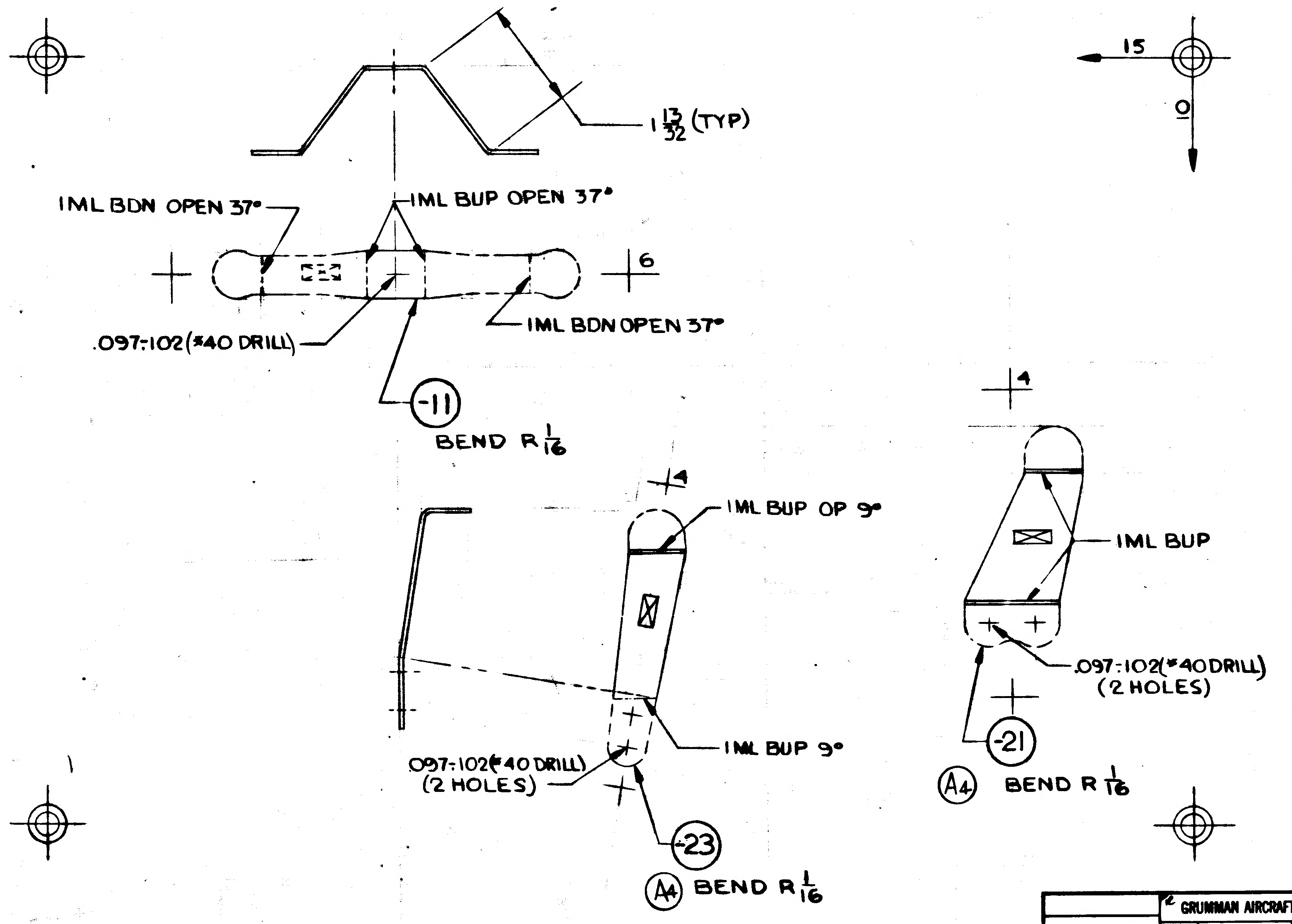
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



$1\frac{13}{32}$ (TYP)
IML BDN OPEN 37°
IML BUP OPEN 37°
6
.097:.102(#40 DRILL)
IML BDN OPEN 37°
-11
BEND R $\frac{1}{16}$
15
0
4
IML BUP OP 9°
IML BUP 9°
.097:.102(#40 DRILL) (2 HOLES)
-23
A4 BEND R $\frac{1}{16}$
4
IML BUP
.097:.102(#40 DRILL) (2 HOLES)
-21
A4 BEND R $\frac{1}{16}$

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL $\sqrt{}$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18332	A
	SCALE FULL			SHEET 3.00

FOR PHOTO REPRODUCTION

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00		P LFM 420- 2370-003		✓		EOA1 LCD 1244 CCA667	IN M/B; REVISED N/A FOR -13 & -15: LDW280-53504 WAS LDW280-53501 ADDED SHEET 1.10	LM-3(33) THRU LM-15(45) SERIAL#1	✓		J. VICINANZA 11-19-68	BC.	
	2	1.00 2.00 3.00	A2 A3	P LFM 420- 2370-003		✓		EOA2 LCD 1244 CCA667	REMOVED -13 & -15 (1 EA REQ'D). ADDED -17 & -19 (1 EA REQ'D)	LM-3(33) THRU LM-15(45) SERIAL#1		-13 -15			
	3	1.00		S LFM 420- 2370-003		✓		EOA3 LCD 1244 CCA 667	-17 & -19 (2 EA WAS 1 EA). -11 (4 WAS 2) N/A LDW420-2386 WAS LDW280-53608	SERIAL#1	NOT	REQ'D			
	4	1.00 2.00 3.00	A2 A3	LFM 420- 2370-003		✓		EOA4 LCD1244 CCA 667	IN FLD, B/M & MOD/BLK REMOVED -17 & -19 ADDED -21 & -23.	LM3(33) THRU LM15(45) SERIAL#1		-17 -19			
	5					✓		EOA5 LCD 1244 CCA667	CANCELLED BY EOA7	LM4(34) THRU LM15(45)	NOT	REQ'D			
	6			LFM140		✓		EOA6 LCD 2360	LCD 2360 WAS LCD1244 & REMOVED (CCA667)						
	7					✓		EOA7 LCD1244 CCA 667	CANCELS EOA5						

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY					

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18332	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280
EO NO. 1238
CONTROL INFO NO. LDW280B6441

IN MODEL BLOCK REMOVE LM-15(45) EFFECTIVITY FROM THE FOLLOWING DWGS. AND THEIR RESPECTIVE DASH NUMBERS.

DRAWING NUMBER	DASH No.'S *	CHANGE No.
LDW280-54608	-25	H9
LDW280-54981	-11-1	F3
-56608	-1	A7
-54351	-3	C1
-18332	-11,	B1
-18062	-11, -13, -15, -17, & -19.	A5
-18036	-13	B8
-17848	-11 & -15	B2
-17890	-11	B5
-17876	-11, -13, -15, -19, -21, -23 & -25	B3
-17992	-15, -19, -21, & -23	B10
-17926	-15	B6
-17914	-11, & -15	B5
-17909	-11, -13, & -15	B5
-16054	-1	D7
-16055	-3	D7
-16056	-1	D8
-16057	-3	D7
-16097	-1	A6
-16098	-1	A5
-16026	-1	B4
-16001	-7 & -9	C4
-16002	-1	B7
-16046	-15, -17, -19, -21, & -23	C5
P17987	-1 & -3	A5
P16216	-1	A5
P16230	-11	A4
P16246	-1	B2
P16218	-11 & -13	B4
P11598	-11	B1
M17351	-1	B9
M17350	-1	C7
M16116	-1	A4
M16303	-11	B3
M16110	-1	A3
M16302	-11	B7
LDW280 M11158	-3-1	B4
LDW280-11534	-17, & -19	B4

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG. 5

REASON FOR EO: DELETION OF REQUIREMENTS FOR LM-15(45).

DESCRIPTION OF EO: REMOVED LM-15(45) EFFECTIVITY FROM DASH *.

GAEC EO RELEASE: JK 12/12/68

MODEL: LM

EFFECTIVITY — PROCURING ACTIVITY NO.: — GAEC UNIT NO.: LM-15(45) — SUB CONTR UNIT NO.:

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	JAS			JW	W/A		JAP	Jm
DATE	12/5/68			12/5/68	12/6/68		12/6/68	12-12-68
~	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOV

PRIORITY: C

DRAWING TITLE: SEE DRAWINGS

DRAWING NO.: LEO 280

EO NO.: 1238

ISSUED BY W. LEIFER/J. WOLF 12-4-68 X1153 1/2/69 SECTION EQUIP. LINES GROUP NO. 332 PL 25

G 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1340
CONTROL INFO NO. LDW280B7427

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18316	✓	A1	SEE DWG
-18317	✓	B1	
-18324	✓	A3	
-18325	✓	B1	
-18326	✓	B1	
-18330	✓	B1	
-18332	✓	B2	
-18340		A5	
-18342		A4	
LDW280-18343		A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 3 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: JK 4/16/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	4/1/69			4-2-69	4/8/69		4/9/69	4/15/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[illegible]

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1340

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO 1697
CONTROL INFO NO. LDW280B8398

IN MODEL BLOCK EFF LM-10(40) THRU LM-14(44), REVISE NEXT ASSEMBLY TO LDW280-56608 WAS LDW280-54608 ON THE FOLLOWING DRAWING DASH NUMBERS:

DRAWING NUMBER	DASH NUMBER*	DRAWING TITLE	CHANGE NO.
✓ LDW280-16026	-1	TUBE ASSY D/S HELIUM VENT RELIEF	B5
✓ LDW280-18332	-11	SUPPORT D/S QUADCHECK MODULE FITH SHIELD COVER	B3
LDW280P16218	-11, -13	PORT PROPULSION SYSTEM OVBD VENT PRESSURE RELIEF	B5
LDW280P17987	-1, -3	FAIRLEAD D/S UP DECK-HELIUM DISTR. FUEL & OX LINES SUPPORT	B1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 5 ✓ (5)

REASON FOR EO: DESCENT TANK EXTENSION

DESCRIPTION OF EO: ON SH 1.00 IN MODEL BLOCK ON DASH NO. * EFF LM-10(40) THRU LM-14(44), REVISE N/A TO LDW280-56608 WAS LDW280-54608

GAEC EO RELEASE: 9-30-69; JK 10/1/69

MODEL: LM
EFFECTIVITY: PROCURING ACTIVITY NO.: ; GAEC UNIT NO.: LM-10(40) THRU LM-14(44); SUB CONTR UNIT NO.:

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP: NOT REQD

APPROVED BY								
DATE	9/26/69			9/26/69			9/29/69	9/31/69
	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 1697

10/17/69
ISSUED BY J. CIEZKOWSKI X86046 SECTION V.D.I. (EQUIP. LINES) GROUP NO. 332 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

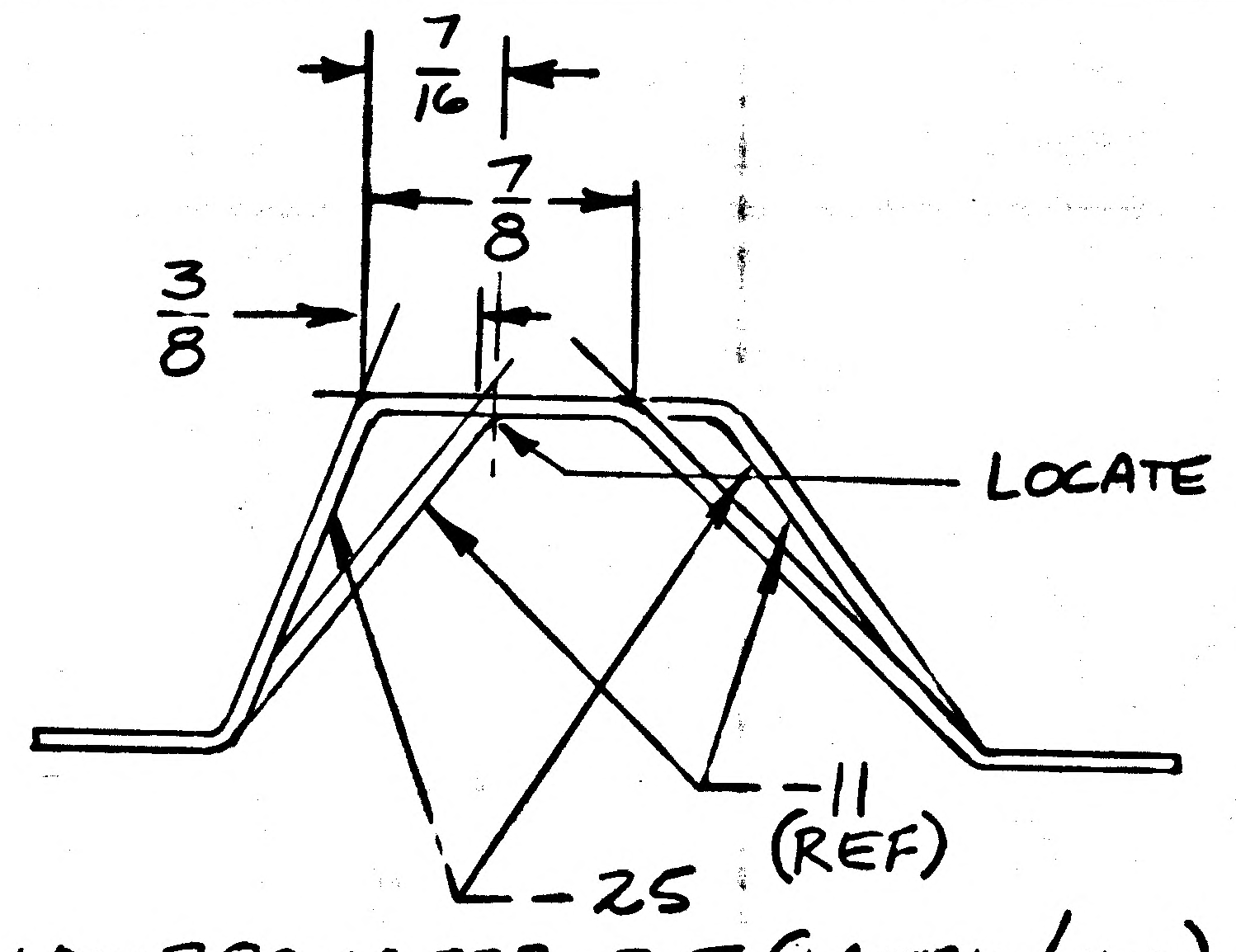
CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-66

DWG. NO. LDW280-18332 | EO NO. B4

CONTROL INFO NO. LM-S-22929



LOCATE .097-.102 (#40 DRILL) IN -25

LDW280-18332-25 (1 REQ'D/MOD)
N/A LDW280-56608

-25 IDENTICAL TO -11 EXCEPT AS SHOWN

IN -11 MODEL BLOCK CHANGE "2" REQ'D/MOD TO "1" FOR N/A LDW280-56608

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994

REASON FOR EO

TO ACCOMMODATE STRUCTURAL CHANGES (REF MRR L05-4340, PIRR L5198 FOR LM-10)

DESCRIPTION OF EO

ADDED -25. IN -11 MODEL BLOCK, "1" REQ'D WAS "2" FOR N/A LDW280-56608

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-13 (43)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-11 (1)

APPROVED BY	PJT				KC	CH	PJT	
DATE	7-22-70			7/21/70	7/21/70	7-7-70	7-22-70	7-9-70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPPORT D/S QUAD CHECK MOD - FITH SHLD COVER	LDW280-18332	B4

ISSUED BY LIAISON E. V. BERGEMAN X-86755 SECTION VD1 GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18332	EO NO. B5
CONTROL INFO NO. LM-5-23169	

THIS IS A REVISION
OF EO B4 (FLD & DESCRIPTION OF EO)

LDW280-18332-25 S/B -27

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCD 3994

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PREVIOUSLY USED DASH NUMBER	REF EO B4 ADDED -25 SHOULD BE ADDED -27	② CH

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
		LM-13(43)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY	DP				KC	CH	WP	Botts
DATE	8/3/7.			9/1/70	8/19/70	8-17-70	8/2/7.	8-18-70
8-13-70	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPPORT D/S QUAD CHECK MOD - FITH SHLD COVER	LDW280-18332	B5

ISSUED BY LIAISON EV. BERGEMAN/RAS. X86755 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18340

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
LM	LDW280-54576	DVT (70)	1

PART NO. LDW280-18340-11 | GAEC SCH NO. 51-2

WORK PKG FUNCTION NO.110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL^C INFO: PRIM NO. 207 | JK(001) | MP-16 9/8/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD19-1433 CCA 586

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY G.ZARCADOOLAS J.BIANCHINO 8-22-67
LAYOUT BY F.MARZELLA
CHECKED BY WCG 8/31/67
GR LEADER 9/5/67
VEH DSGN INT 9/7/67
STRUCTURES 9/6/67
STRUCTURES 9/6/67
WEIGHTS
PROJ ENGR 9/7
REL GROUP 9/7/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-SCIENTIFIC EQUIP BAY
LOWER DECK

SIZE B | CODE IDENT NO. 26512 | LDW280-18340
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 9-15-67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18340-11	E	WEB	AL ALY SH	7075-T6	QQ-A-250/12	.071X26X59	SEE	NOTE 2	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

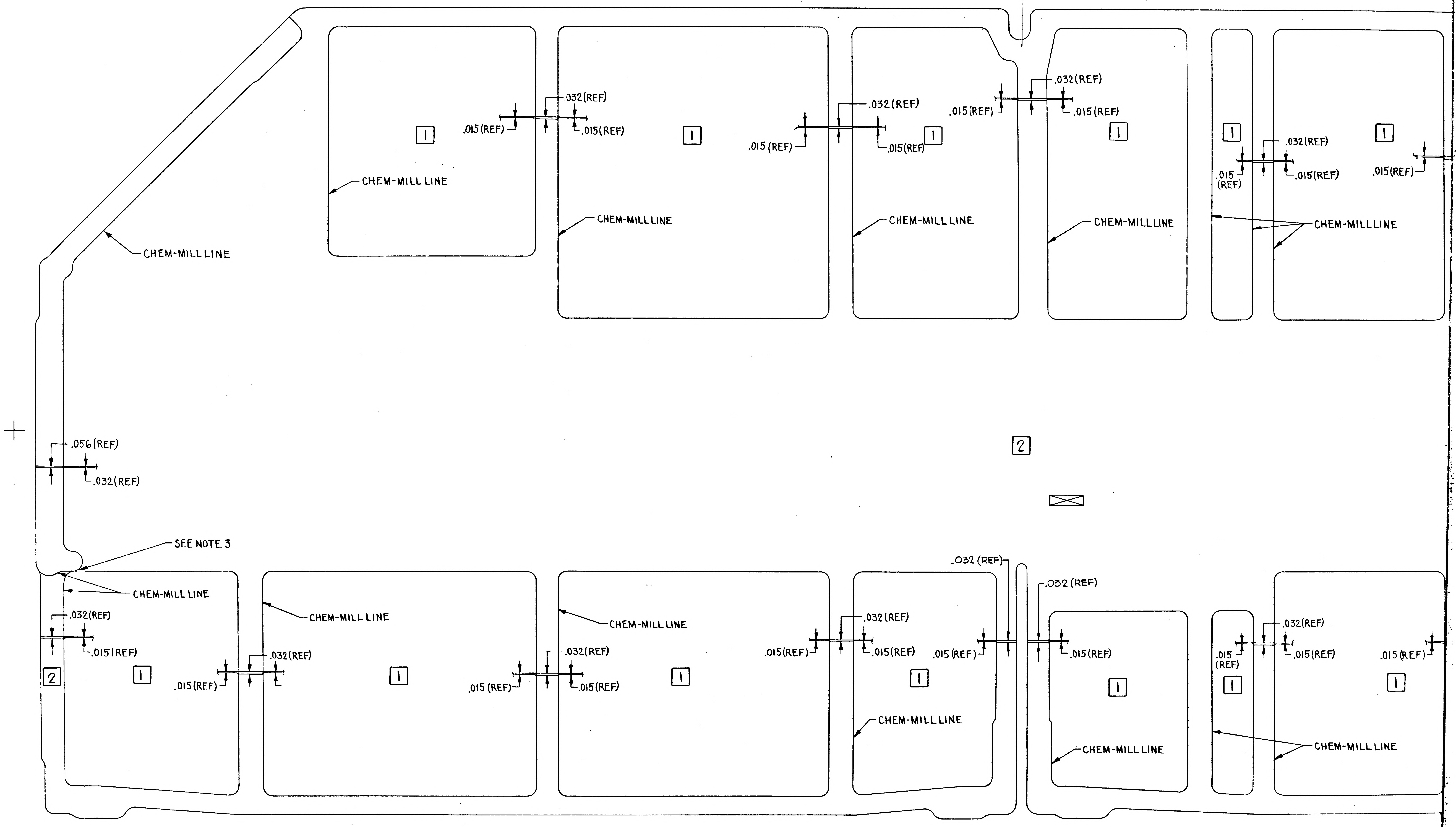
SIZE B | CODE IDENT NO. 26512 | LDW280-18340

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



.032(REF)
.015(REF)
.015(REF)
1
CHEM-MILL LINE
CHEM-MILL LINE
.032(REF)
.015(REF)
.015(REF)
1
CHEM-MILL LINE
.032(REF)
.015(REF)
.015(REF)
1
CHEM-MILL LINE
1
CHEM-MILL LINE
.032(REF)
.015 (REF)
.015(REF)
.015(REF)
1
1
CHEM-MILL LINE
.056(REF)
.032(REF)
2
SEE NOTE 3
CHEM-MILL LINE
.032(REF)
.015(REF)
2
1
CHEM-MILL LINE
.032(REF)
.015(REF)
1
CHEM-MILL LINE
.032(REF)
.015(REF)
.015(REF)
1
.032(REF)
.015(REF)
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CHEM-MILL LINE
.032 (REF)
.032(REF)
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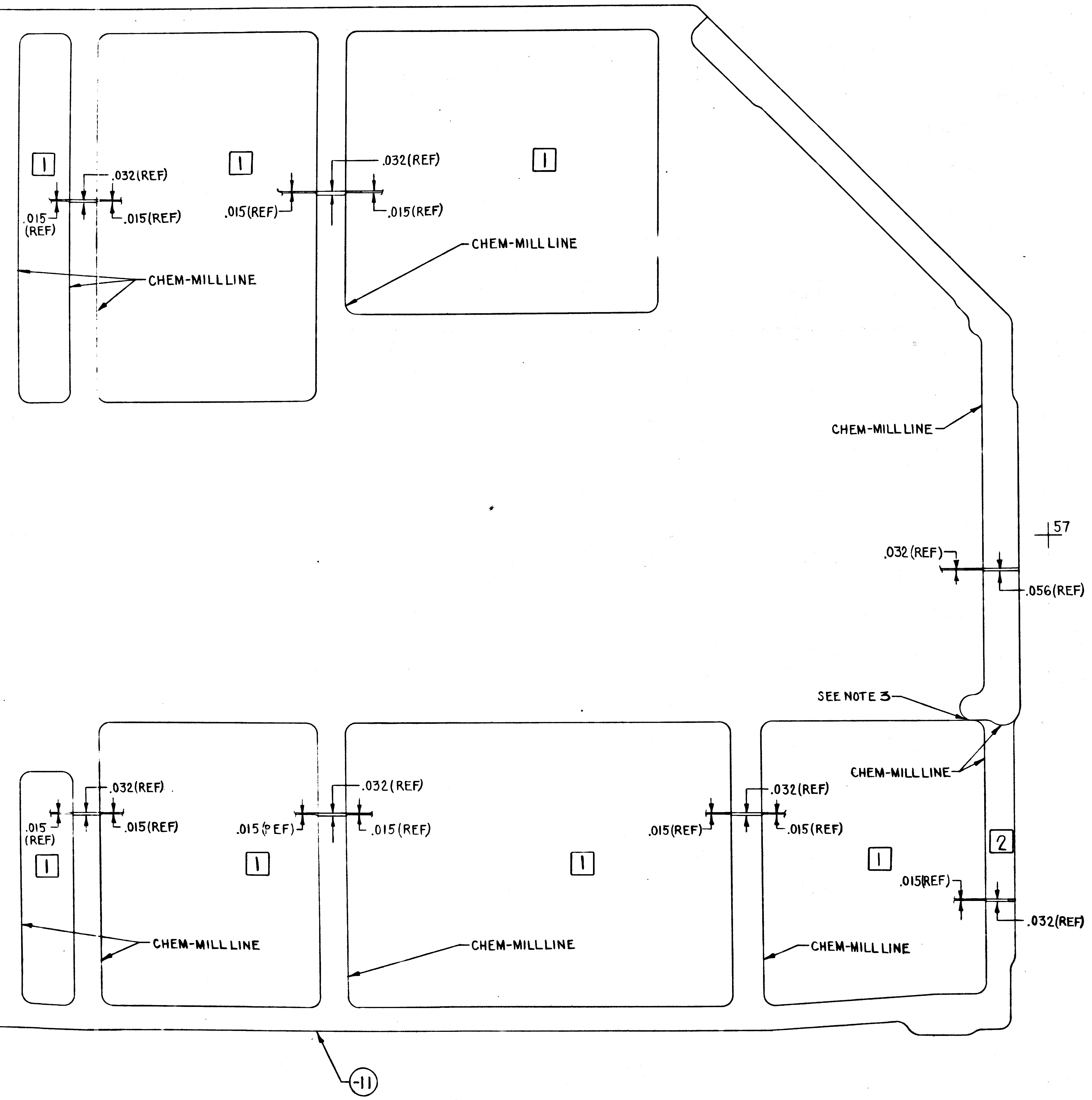
1
CHEM-MILL LINE
.032(REF)
.015 (REF)
.015(REF)
.015(REF)
1
1
CHEM-MILL LINE

01/02 NAS 9-1100

LDW280-18340 SH 3

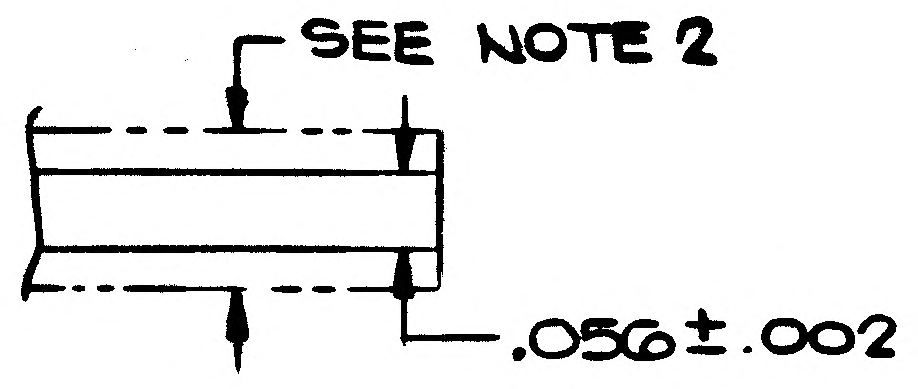
TRIM OK



70
30
1
.032(REF)
.015 (REF)
.015(REF)
.015(REF)
.032(REF)
.015(REF)
CHEM-MILL LINE
CHEM-MILLLINE
CHEM-MILLLINE
.032(REF)
.056(REF)
57
SEE NOTE 3
CHEM-MILLLINE
.032(REF)
.015 (REF)
.015(REF)
.015(REF)
.032 (REF)
.015 (REF)
.015(REF)
.032(REF)
.015(REF)
2
.015(REF)
.032(REF)
CHEM-MILL LINE
CHEM-MILLLINE
CHEM-MILL LINE
-11

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FABRICATE -11 PER LPC280-43
3. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.



SEE NOTE 2
.056±.002

FOR ENGINEERING REF ONLY
NO SCALE

LDW280-18340-11

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015^{+.005}_{-.000}$	.041 (REF)
2	$.032^{+.005}_{.000}$	.024(REF)

02/02

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34x 88

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36x 96) = 24 SQ. FT.
¼ SIZE SHEET AREA (¼ OF FULL) = 6 SQ. FT.

PRINT TRIM LINE

LDW280-18340

LDW280-18340

DW280-18340 SH 3

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18340	
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

K2

FOR PHOTO REPRODUCTION

2FR

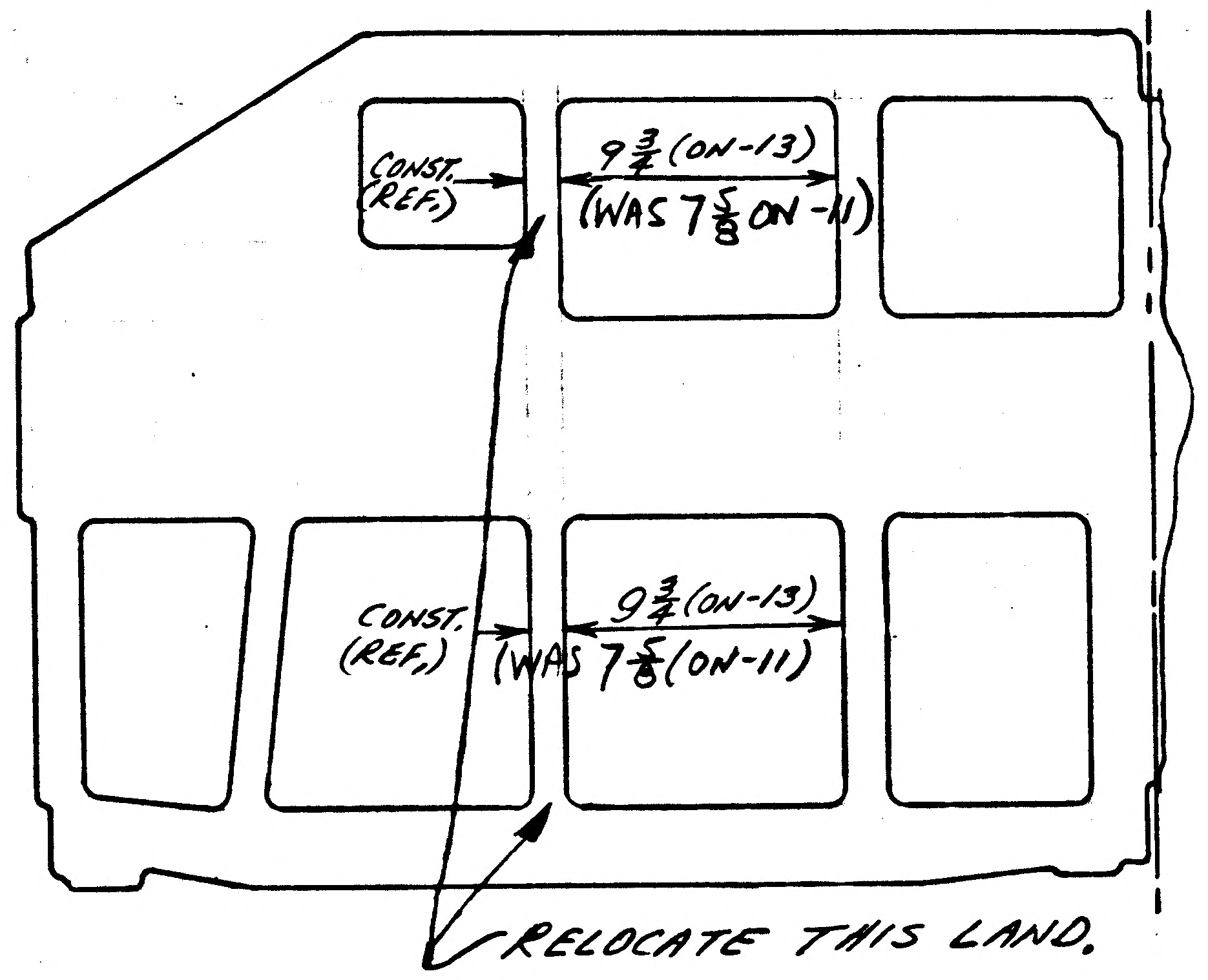
ENG 73-7 6-64

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18340		EO NO. A1	
CONTROL INFO NO. LDW280A-9110			

ADD -13, REMOVE -11
(-13 SAME AS -11 EXCEPT AS NOTED)



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 CCA 586 3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
MATING STRUCTURE REVISED	ADDED -13, REMOVED -11	C JK 9/13/

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~	✓			-11	DATE	9/11/67			9/9/67	9/12/67		9/12/67	9-13-67
				REVISE DWG	RECORD EO	REWORK	SCRAP		V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
LM	LM-4	(34) THRU LM-15	(45) & DVT (70)	PRIORITY C	DRAWING TITLE: WEB - DESCENT STAGE - SCIENTIFIC EQUIPMENT BAY, LOWER DECK						DRAWING NO. LDW280-18340				EO NO. A1	

ISSUED BY 9/20 E. RANSOM X7033 9/8/67 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

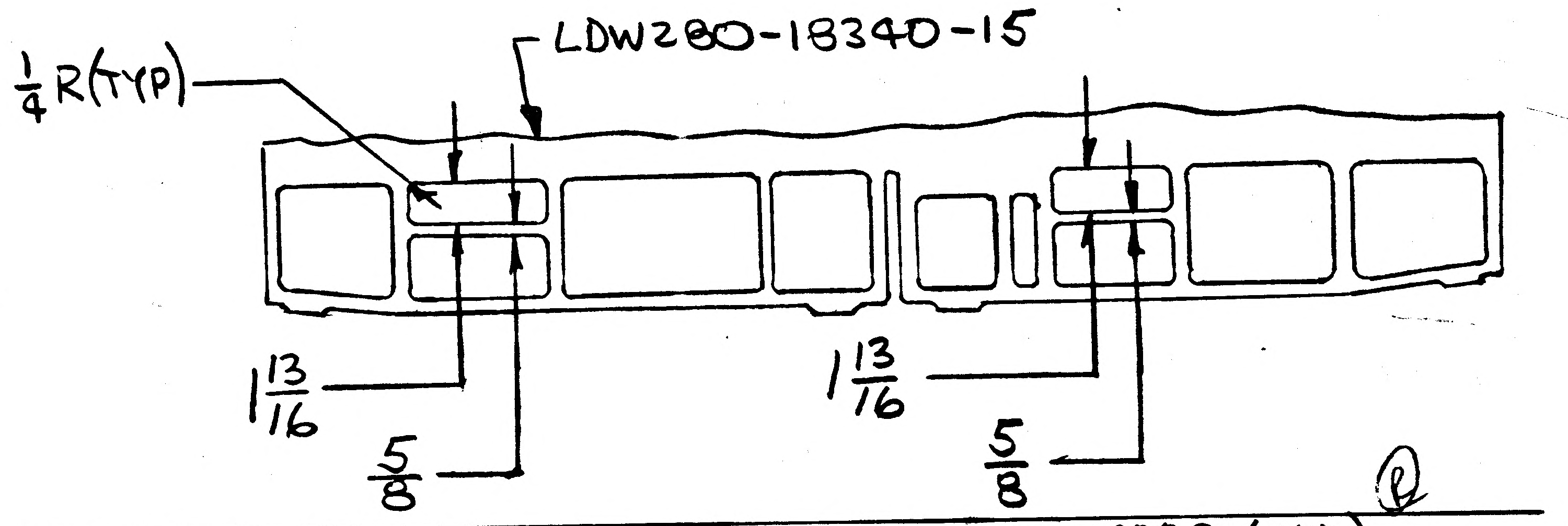
01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18340 | EO NO. A2
CONTROL INFO NO. LDW280A9828

ON LDW280-18340 REMOVE -13 AND ADD -15 WEB.
-15 IDENTICAL TO -13 EXCEPT FOR CHEM-MILL THICKNESS
.012 $^{+.002}_{-.002}$ WAS .015 $^{+.005}_{-.000}$, LTA-3 (13) REQM'TS, AND AS NOTED.
FOR LTA-3 EFF N/A & QUANTITY SAME AS FOR LM-4.
ON -15 ADD .032 LAND THICKNESS AS SHN 2 PLCS.



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA 586, LCD2220 (CL II)

REASON FOR EO: REDESIGN FOR ALSEP

DESCRIPTION OF EO: REMOVED AND REPLACED -13 WITH -15
ADDED LTA-3 (13) REQMT'S.

GAEC EO RELEASE: JK 10/27/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
LM	LM-4 (34) THRU LM-15 (45)		
LM	DESIGN VERIFICATION TEST (70)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ. ENGRG	~~GOVT~~
✓			✓	DATE E	JAP 10/17/67 VDI			10/17/67	10/24/67		WLB 10/17/67	10-27-67

PRIORITY: C
DRAWING TITLE: WEB-DESCENT STAGE-SCIENTIFIC EQUIPMENT BAY-LOWER
DRAWING NO.: LDW280-18340
EO NO.: A2

10/20 10/30
ISSUED BY A.F. MARZELLA SECTION VEHICLE DESIGN & INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 781
CONTROL INFO NO. LDW280A9988

FOR THE FOLLOWING DRAWINGS, REVISE
CHEM-MILL TOLERANCES

$.012^{+.003}_{-.002}$ WAS $.012 \pm .002$
*

	DWG NO.	DASH NO.	CHG. NO	TITLE	DEPTH OF CUT
✓	LDW280- 18368	-13	A2	SEE DWG	.012 (REF)
✓	LDW 280- 18378	-13	A2	SEE DWG	.008 (REF)
✓	LDW280- 18381	-13	A2	SEE DWG	.008 (REF)
✓	LDW280- 18340	-15	A3	SEE DWG	.044 (REF)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ LCD 1433CCA586, LCD 2220 CL II ② 5

REASON FOR EO: REDESIGN FOR ALSEP

DESCRIPTION OF EO: $.012^{+.003}_{-.002}$ WAS $.012 \pm .002$ FOR - *

GAEC EO RELEASE: JK 11/1/67

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-3 (13),	LM-4 (34)	
	THRU	LM-15 (45)	
	& DVT (70)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY									
DATE		10/24/67			10/24/67	10/24/67		10/3	10/23/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 781

11/2(
ISSUED BY R. GORTLER / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

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ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 943
CONTROL INFO NO. LDW280B3241		

FOR THE FOLLOWING PART NO'S. ADD TM-5/R(65) REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9
-17623-19		2	
-18512-11		4	B1
-17711-25		1	C9
-17711-27		1	
-17792-21		1	B9
-17792-23		1	
-18340-15		1	·A4
-18342-11		1	A3
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13		1	·A1
LDW280-18478-15	SEE DWG.	1	

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 CCA 586 PKG 2G (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC EO RELEASE: 5/16/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS								
✓ REVISE DWG	NOT REQD	APPROVED BY							
RECORD EO	REWORK / SCRAP	DATE	5-14-68			5-13-68	5-13-68	5/13/68	5/16/68
			VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO 280	943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280 | EO NO. 1527
CONTROL INFO NO. LDW 280B 8110

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW280-18340 ✓	SEE DWG	A6
42		A5
43		A4
44		A5
46		A5
48		A4
49		B1
50		A6
51		A4
LDW280-18352	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 30 & 31 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69; JK 8/9/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D | REWORK | SCRAP

APPROVED BY	PJT				M		Bauman
DATE	7-29-69			7/29/69	8/2/69		8-9-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1527

8-26-64
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1638
CONTROL INFO NO. LDW280B 8434

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/ LDW 280 - 17711	SEE DRAWING	LDW280-54576	D3
/ -17792		-54576	C3
/ -18340		-54576	A7
-18342		-54576	A6
-18343		-54576	A5
-18344		-54576	A6
-18380		-54576	A5
-18386		-54576	A5
-17623		-23578 -54576	C5
-18387		-54576	A6
-18178 ✓		54576 23577	A5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 70 PG 1, 2. (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8/29 JK 8/28/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NC REWORK / NR'D SCRAP

APPROVED BY							
DATE	8-8-69			8/4/69	8/1/69		8/13/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1638

ISSUED BY 8-25-69 A FURIO X 86046 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.00, 1.10 2.00, 3.00					✓	EDA1 LCD 1843	EDA1 INITIAL DWG RELEASE. PARTS MADE PER E.O.	LM-2 (32) LM-3 (33)	NOT	REQ'D	F. LEGIDO 8-1-67		8/1/67
	2	3.00						Ⓐ	REF EDA1: ON-13, -14 & -15 1/8R (TYP) SHOULD BE 1/4R (TYP). ON-11 11 9/16 DIM WAS 11 7/16 J.F.	LM-2 (32) LM-3 (33)	NOT	REQ'D		8/1	

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	RELIABILITY				
A	—	J. Pusateri 8/15	NM 8/15/67							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18341	A Ⓐ

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18341 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23677	LM-3(33)	4 EA
LM	LDW280-23677	LM-2(32)	4 EA

PART NO. LDW280-18341-13-15-16 & 17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23677	LM-3(33)	1
LM	LDW280-23677	LM-2(32)	1

PART NO. LDW280-18341-11

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10
REV	A	A
SHEET	2.00	
REV	A	
SHEET	3.00	
REV	A	

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO A

PRIM NO. 207

SK(001)

MP-16 8/17/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE ✓

CLASS I ENGRG CHANGE

LCD 1843

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	LEGIDO 8-1-67	RELIABILITY
LAYOUT BY	J. MAJUK/D RAGAS	
CHECKED BY	D. FASS 8-7-67	
GRLEADER	J. Pusateri 8/15/67	
VEH INT DES	JAP 8/15	
STRUCT	NM 8-15-67	PROJ ENGR
STRUCT	Hilderman 8-15	REL GROUP
WEIGHTS		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE
DASH POT SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18341 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18341-17	E	BRACKET	AL ALY SH	QQ-A-250/12	7075-0	.040 x 2 x 3	T6	88	
		-16						.040 x 2 x 3			
		-15						.040 x 2 x 3			
		-13						.040 x 2 x 3			
		LDW280-18341-11	E	BRACKET	AL ALY SH	QQ-A-250/12	7075-0	.050 x 7 x 14	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18341	A
SCALE NONE			SHEET 2.00

Ⓐ

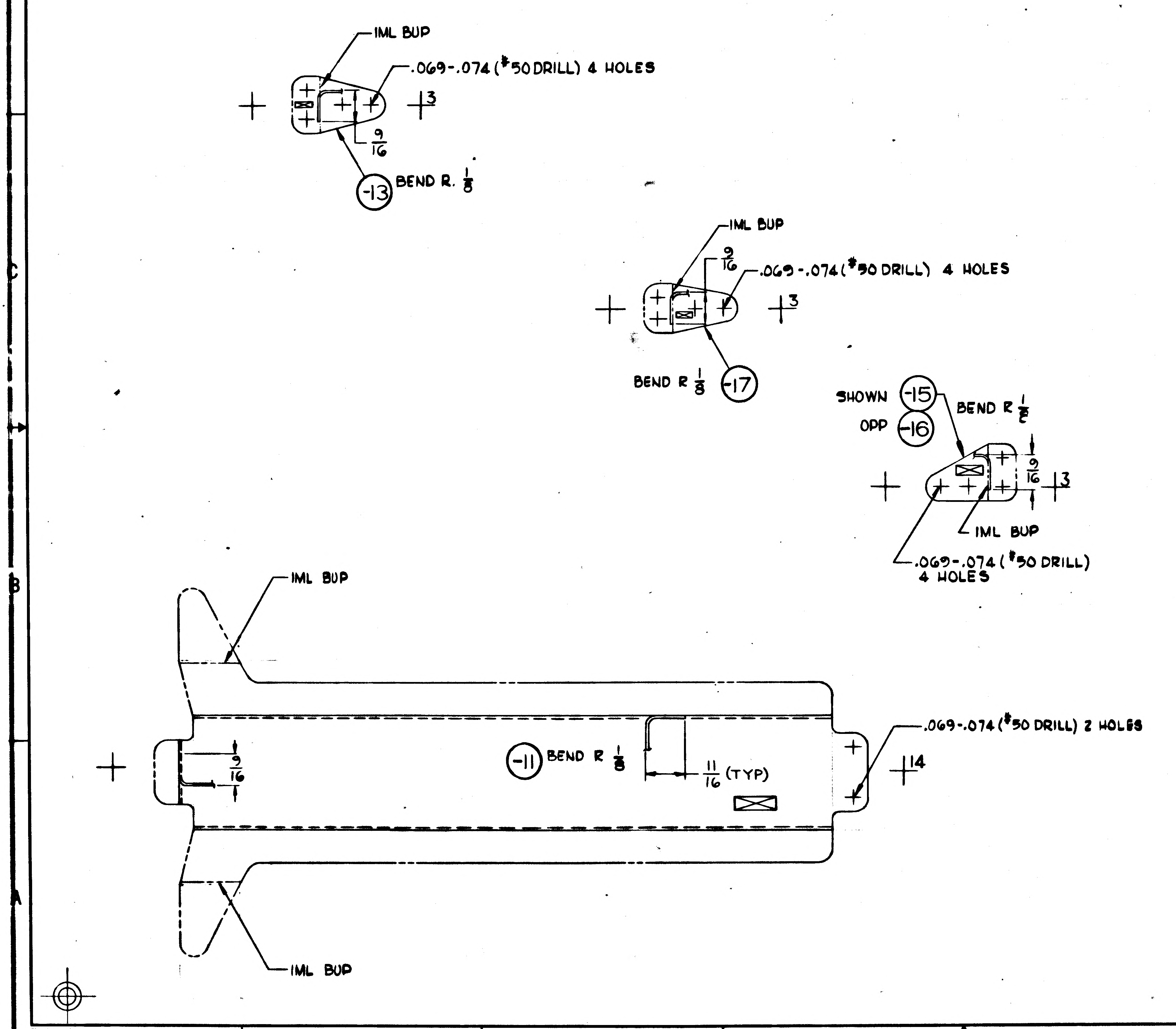
ENG 77.2 7-65

01

NAS 9-1100

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.



IML BUP
.069-.074 (#50 DRILL) 4 HOLES
3
9/16
-13
BEND R. 1/8
IML BUP
9/16
.069-.074 (#50 DRILL) 4 HOLES
3
BEND R 1/8
-17
SHOWN -15
OPP -16
BEND R 1/8
9/16
3
IML BUP
.069-.074 (#50 DRILL) 4 HOLES
IML BUP
.069-.074 (#50 DRILL) 2 HOLES
14
9/16
-11
BEND R 1/8
11/16 (TYP)
IML BUP

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280 - 18341	A
	SCALE FULL			SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18341-A

01

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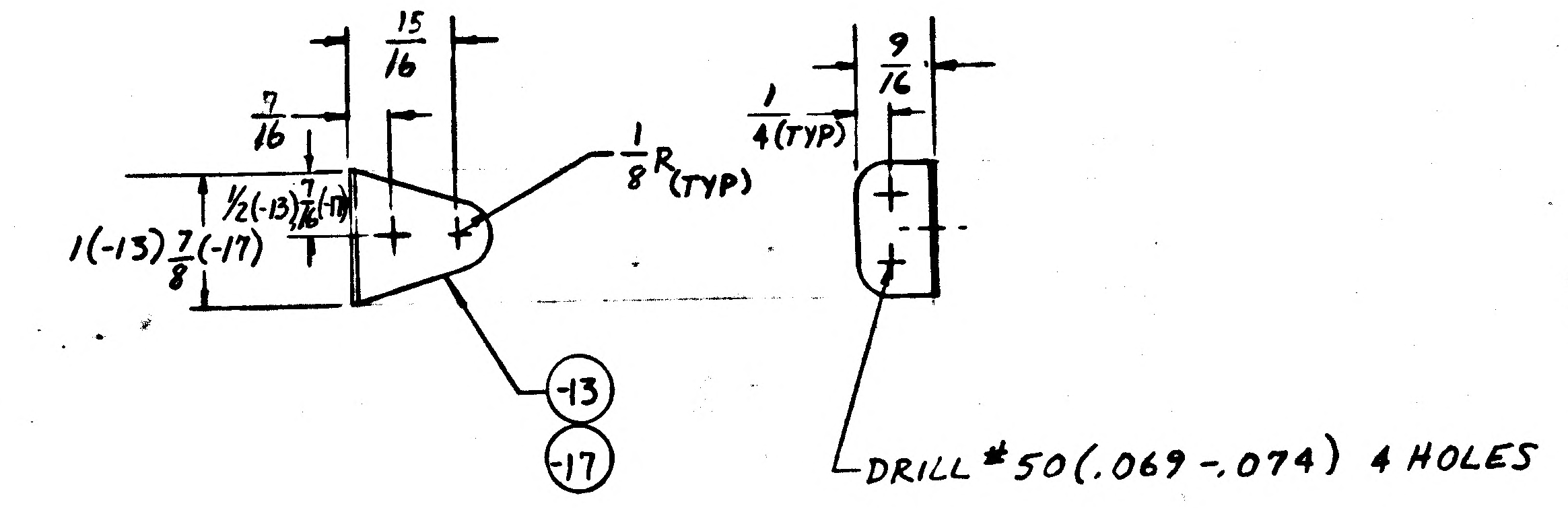
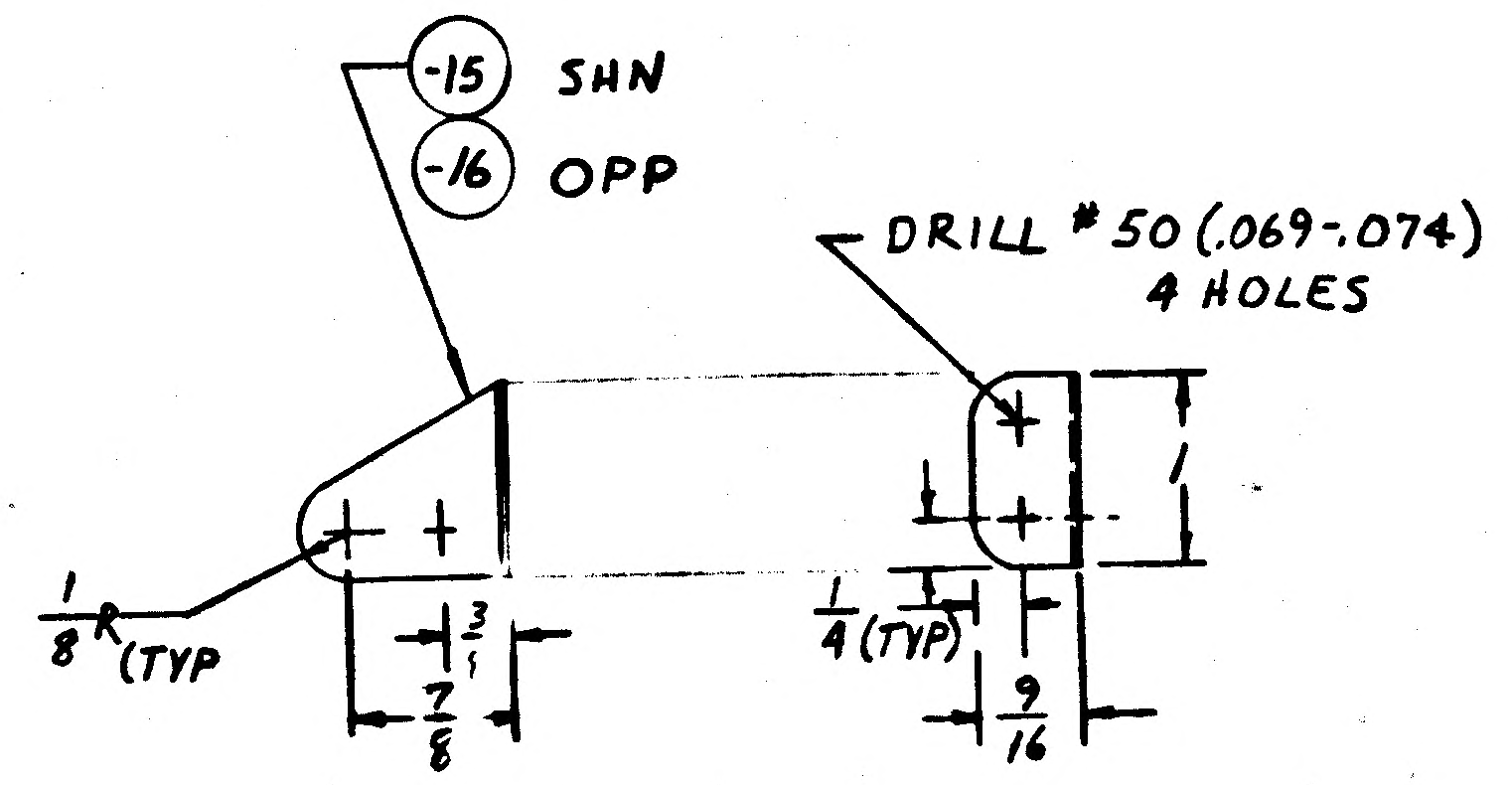
FULL SIZE SH AREA (30x36) 7.5 SQ FT.
1/4 SIZE SH. AREA (1/4 OF FULL) 1.875 SQ FT.



15/16
7/16
1/8 R (TYP)
9/16
1/4 (TYP)
1(-13) 7/8 (-17)
1/2(-13) 7/16(-17)
-13
-17
DRILL #50 (.069-.074) 4 HOLES

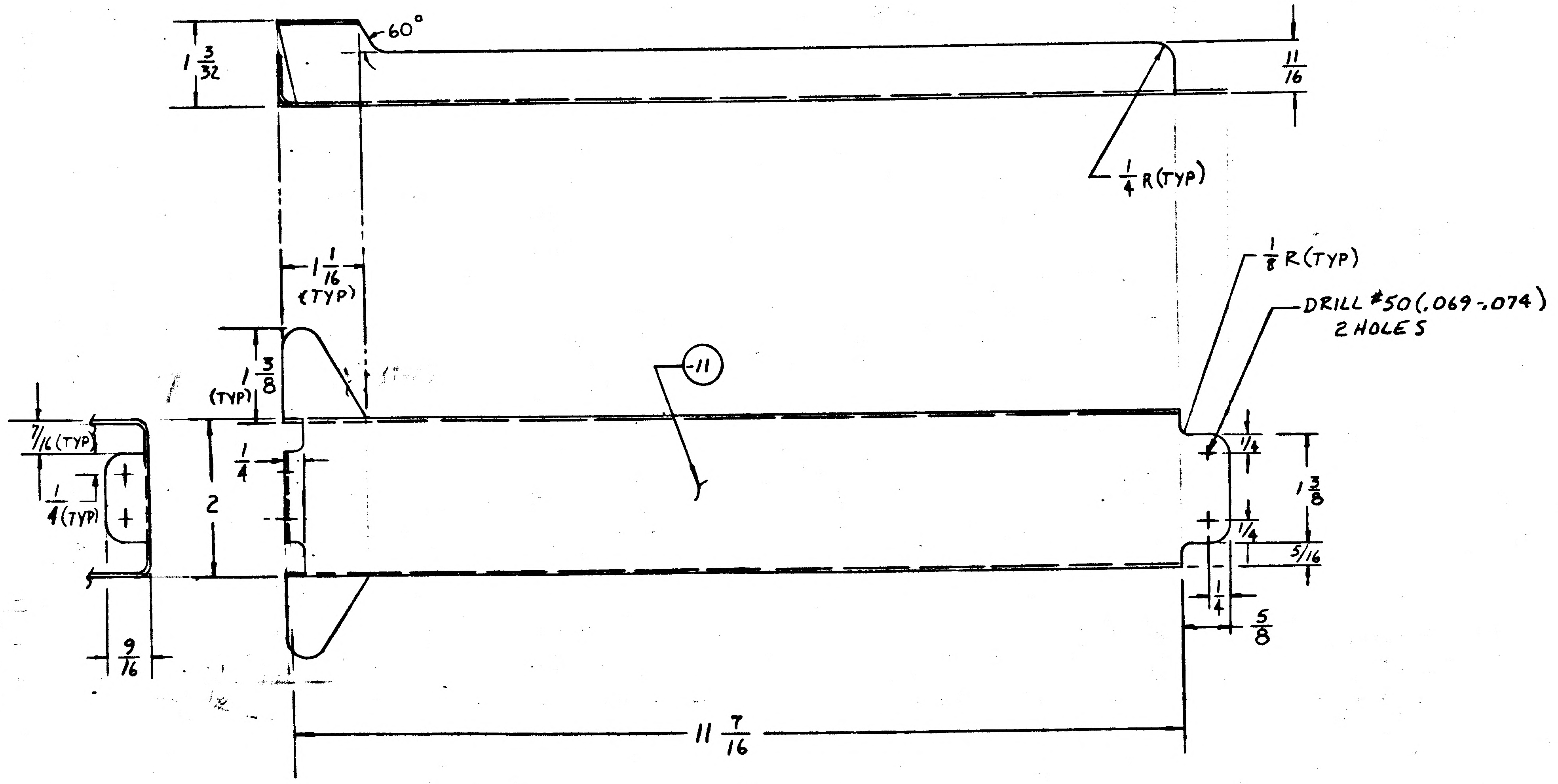


-15 SHN
-16 OPP
DRILL #50 (.069-.074) 4 HOLES
1
1/8 R (TYP
3/8
7/8
1/4 (TYP)
9/16

NOTE
1- NO TOOLING HOLES PERMITTED IN DETAIL PARTS

-11	(.050)	MAKE FROM: 7075-O AL. ALY SH QQ-A-250/12 BEND R 1/8 HT-T6 FIN 88
-13	(.040)	
-15, -16	(.040)	
-17	(.040)	

-11 N/A LDW280-23677 - LM2 (32) LM3 (33) - 1 REQD/MOD.
-13 & -17 " " " - 4 REQD/MOD
-15 & -16 " " " - 4 EA REQD/MOD



1 3/32
60°
11/16
1/4 R (TYP)
1 1/16 (TYP)
1 3/8 (TYP)
-11
1/8 R (TYP)
DRILL #50 (.069-.074) 2 HOLES
7/16 (TYP)
1/4 (TYP)
1/4
2
1/4
1 3/8
5/16
1/4
5/8
9/16
11 7/16

*- DWG. NOT MADE

(A)

5

DETAIL SPEC REQD		CLASS II ENGRG CHG	✓	CLASS I ENGRG CHG	LCD-1843	CONTROL INFO NO. LDW280A-8046

REASON FOR EO: TO PREVENT DAMAGE TO DIFFERENTIAL TRANSDUCERS

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE. PARTS MADE PER EO

GRUMMAN EO RELEASE: C JK 7/22/67

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY		
LM		LM2(32) LM3(33)	

DRAWING REVISION REQD: * REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQ REWORK / SCRAP
BY: DATE: 7/18/67 VDI
SUPPORT
RELIAB GROUP
GROUP LEADER
STRESS GROUP 7/21/67
LIAISON ENGRG
PROJ ENGR 7-21-67 7-22-67

ENGINEERING ORDER
PRIORITY: C
DRAWING TITLE: BRACKET D/S- DASH POT SUPPORT
DRAWING NO.: LDW280-18341
EO NO.: A1

ISSUED BY BILL MAJUK DON RAGAS X1153 SECTION VDI GROUP NO. 335 PL 25
CODE IDENT NO. 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.
ENG 32.3 REV 3-65

01 NAS 9-1100

ENG 32.1 REV 3-65 Ⓐ

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18341
EO NO. B1
CONTROL INFO NO. LM-5-15845

ON-11, 1 REQ'D/MODULE S/B 2 REQ'D/MODULE

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1843	5

REASON FOR EO: QTY REQ'D FOR -11 WAS INCORRECT

DESCRIPTION OF EO: ON-11, 2 REQ'D/MODULE WAS 1 REQ'D MODULE

Ⓑ GAEC EO RELEASE C JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
		LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JaP			—	MBS		WRB	
DATE	8/14/67			—	8/9/67	8-8-67	8/14/67	8/10/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S - DASH POT SUPPORT	LDW280-18341	B1

ISSUED BY LIAISON - J. Mc GILL X-86755 SECTION YD1 GROUP NO._____ PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	—	EO NO. 750
CONTROL INFO NO. LDW 82 — 3336		

FOR THE FOLLOWING PARTS ADD LTA-5 EFF N/A LDW280-25677

PART NO. *	TITLE	QTY/MOD	CHG
✓ LDW280- 18345-11	CHANNEL D/S DASH POT & LINE SUPPORT	2/MOD	B-2
-18345-13		1/MOD	"
-18345-15		2/MOD	"
✓ -18341-11	BRACKET D/S DASH POT SUPPORT	2/MOD	B-2
-18341-13		4/MOD	"
-18341-15		4/MOD	"
-18341-16		4/MOD	"
-18341-17		4/MOD	"

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓

LCD-1843 82

REASON FOR EO
TO PREVENT DAMAGE TO DIFFERENTIAL TRANSDUCERS

DESCRIPTION OF EO
FOR * ADDED LTA-5(15) EFF

ⓔ GAEC EO RELEASE
JK 10/19/67

EFFECTIVITY

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-5(15)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	GWB	JaP			NJA				
✓		NOT REQD		DATE	9/29/67	10/18/67			10/17/67		10/9/67	10/9/67
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	~~SUPPORT~~ VDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280 —	750

ISSUED BY G. BARNES / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 82

01 ✓

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LDW280-18342

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
LM	LDW280-54576	DVT(70)	1 EA
PART NO. LDW280-18342-11,-13, -15 & -17		GAEC SCH NO. 51.2	

WORK PKG FUNCTION NO. 111 (3)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO

PRIM NO. 207 | V/C(001) | MP-16-9/18/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433 (CCA586)

OK

CONTRACT NO. NAS9-1100

DRAWN BY H.DEUTSCH 9-13-67
LAYOUT BY F.MARZELLA
CHECKED BY D.FASS 9-13-67
GR LEADER 9/13/67
VEH DSGN INT 9/14/67
STRUCTURES MSH 9/14/67
STRUCTURES JEB
WEIGHTS
PROJ ENGR 9/14/67
REL GROUP 9-18-67

LINE ITEM

DOCUMENTATION TYPE II

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-SCIENTIFIC EQUIP. BAY
LOWER DECK

SIZE B | CODE IDENT NO. 26512 | LDW280-18342

SCALE NONE | SHEET 1.00 OF 3.00

ENG 77.1 12-65

CDR 9-15-67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18342-17	E	CHANNEL	AL ALY SH	QQ-A-250/12	7075	.032X3X22	T6	88	
		LDW280-18342-15	E	ZEE	AL ALY SH	QQ-A-250/12	7075	.032X3X18	T6	88	
		LDW280-18342-13	E	CHANNEL	AL ALY SH	QQ-A-250/12	7075	.032X3X25	T6	88	
		LDW280-18342-11	E	CHANNEL	AL ALY SH	QQ-A-250/12	7075	.032X3X22	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

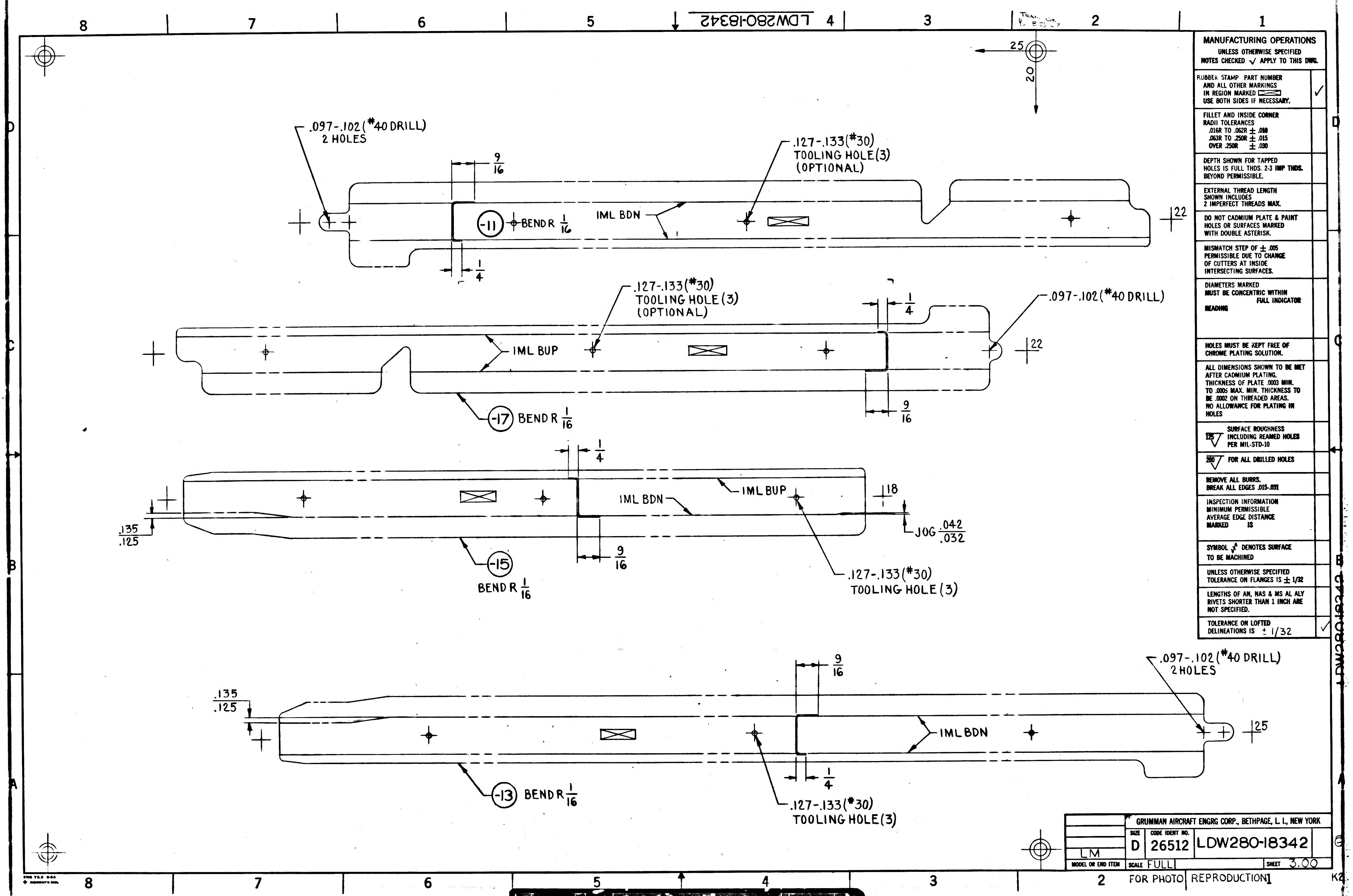
SIZE B | CODE IDENT NO. 26512 | LDW280-18342 | -

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


LDW280-18342
8
7
6
5
4
3
2
1
D
C
B
A
25
20
.097-.102 (#40 DRILL)
2 HOLES
9/16
.127-.133 (#30)
TOOLING HOLE (3)
(OPTIONAL)
-11
BEND R 1/16
IML BDN
22
1/4
.127-.133 (#30)
TOOLING HOLE (3)
(OPTIONAL)
1/4
.097-.102 (#40 DRILL)
IML BUP
22
-17
BEND R 1/16
9/16
1/4
IML BDN
IML BUP
18
.135
.125
JOG .042/.032
9/16
-15
BEND R 1/16
.127-.133 (#30)
TOOLING HOLE (3)
9/16
.097-.102 (#40 DRILL)
2 HOLES
.135
.125
IML BDN
25
1/4
-13
BEND R 1/16
.127-.133 (#30)
TOOLING HOLE (3)
8
7
6
5
4
3
2
1
K2

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM MODEL OR END ITEM	SIZE D	CODE IDENT NO. 26512	LDW280-18342
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 783
CONTROL INFO NO. LDW280A9815

ADD LTA-3(13) EFFECTIVITY TO DASH NO.* OF THE FOLLOWING DWGS.:
QUANTITY SAME AS LM-4(34) THRU LM-15(45)

DWG. NO.	N/A	TITLE	CHG. NO.	DASH NO.*
LDW280-54510	LDW280-54509	SEE DWG.	E1	-1
M17741	-54576		A2	-11, -13
M17743	-54576		A2	-13
M17744	-54576		A2	-13
M17745	-54576		A2	-11, -12, -13
M17770	-54576		A1	-11
-17883	-23578		B5	-15, -17
-17295	-54576		B4	-13, -14, -19, -20, -21, -22, -23, -24, -25, -26
-18342	-54576		A1	-11, -13, -15, -17
-17623	-54566		B6	-17, -19
-18343	-54576		A1	-11, -13, -15, -17, -19
-18344	-54576		A1	-11, -13, -15, -17, -19
M17746	-54576		A1	-11
M17747	-54576		A2	-11
M17628	-54576		B2	-1
-18348	-54577		A1	-11, -13, -14, -15, -17, -18, -19
-18349	-54575		A1	-11, -12, -13, -14, -15, -16, -17, -18
-18350	-23634		A1	-11, -12
M17748	-54575		A2	-13
-18369	-54586		A1	-11, -13, -15, -16, -17, -19
-18346	-54575		A1	-11, -13, -15
-18356	-54575		A2	-13, -19, -21, -25, -26, -27
LDW280M17769	LDW280-54575	SEE DWG.	A1	-11

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 OK. CCA-586

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3(13) EFFECTIVITY TO DASH NO.*

GAEC EO RELEASE: JK 11/1/67

MODEL	EFFECTIVITY		
	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	10/23/67			10/26/67	10/23/67		10/26/67	11-1-67
D	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 783

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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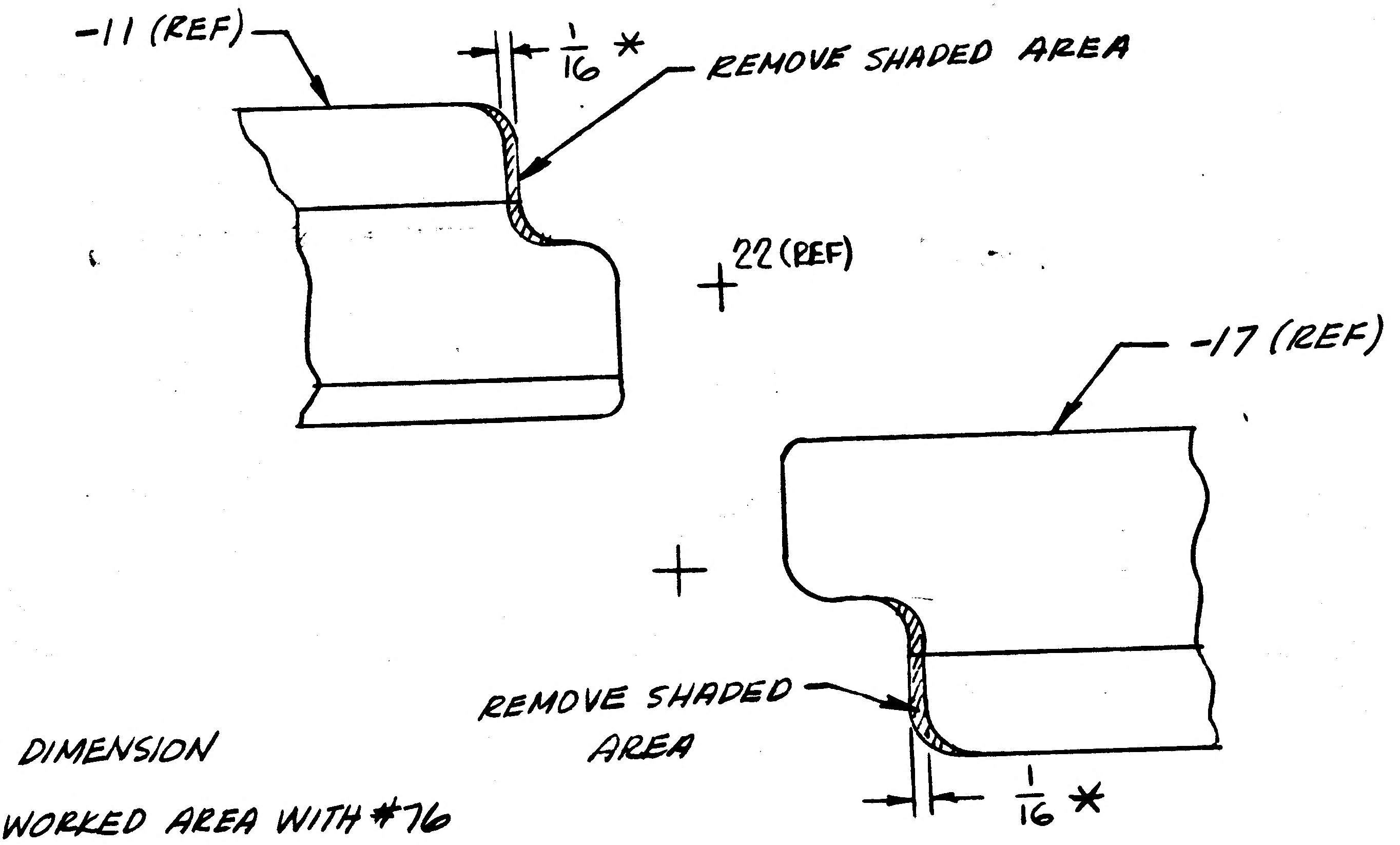
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18342 | EO NO. A2
CONTROL INFO NO. LM-2-4276



* LOFTED DIMENSION

FINISH REWORKED AREA WITH #76

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA 586

REASON FOR EO: ELIMINATE INTERFERENCE WITH MATING PART AT NEXT ASSY

DESCRIPTION OF EO: IN F/D REVISED TRIM OF -11 & -17

GAEC EO RELEASE ②
02025

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		-11 -17		APPROVED BY				-			
				DATE	12-21-67			-	12/8/67	12/8/67	12-21-67	12-19-67
REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3(13)
LM	THRU	LM-15(45)	
LM		DVT (70)	

PRIORITY: C
DRAWING TITLE: CHANNEL DESCENT STAGE-SCIENTIFIC EQUIPT BAY LOWER DECK
DRAWING NO.: LDW280-18342
EO NO.: A2

ISSUED BY LIAISON L.J. BARATELLI x3604 SECTION VD1 GROUP NO. 335 PL 25

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NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 943

CONTROL INFO NO. LDW280B3241

FOR THE FOLLOWING PART NO'S. ADD TM-5/R(65) REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9
-17623-19		2	
-18512-11		4	B1
-17711-25		1	C9
-17711-27		1	
-17792-21		1	B9
-17792-23		1	
-18340-15		1	·A4
-18342-11		1	A3
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13		1	·A1
LDW280-18478-15	SEE DWG.	1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2G (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC EO RELEASE: 5/16/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY: JAS

DATE: 5/13/68

VDI | SUPPORT | RELIAB. GROUP | GROUP LEADER 5-13-68 | STRESS GROUP 5/13/68 | LIAISON ENGRG | PROJ ENGRG 5/13/68 | ~~GOVT~~ 5/16/68

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO 280

EO NO.: 943

5-17-68
ISSUED BY J.TAVARES(x1681)/P.THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

G 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1340
CONTROL INFO NO. LDW280B7427		

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18316	✓	A1	SEE DWG
-18317	✓	B1	↑
-18324	✓	A3	
-18325	✓	B1	
-18326	✓	B1	
-18330	✓	B1	
-18332	✓	B2	
-18340	✓	A5	
-18342	✓	A4	↓
LDW280-18343		A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 3 CCA 1821 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LM-15(45) NO LONGER REQD	DELETED LM-15(45) EFF FROM — *	JK 4/16/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	4/8/9			4-2-69	4/8/69		4/9/69	4/15/69
	VDI	SUPPORT	RELIAL GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1340

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1527
CONTROL INFO NO. LDW280B 8110

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW280-18340 ✓	SEE DWG	A6
42 ✓		A5
43		A4
44		A5
46		A5
48		A4
49		B1
50		A6
51		A4
LDW280-18352	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 30 & 31 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 5-6-69
JK 8/9/9
Bauman 8-9-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY					M			
DATE	7-29-69			7/29/69	8/2/69		8/1/69	8-9-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1527

8-26-64
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280		EO NO 1638
CONTROL INFO NO. LDW280B 8434		

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/ LDW 280 - 17711	SEE DRAWING	LDW280-54576	D3
/ -17792		-54576	C3
/ -18340		-54576	A7
/ -18342		-54576	A6
-18343		-54576	A5
-18344		-54576	A6
-18380		-54576	A5
-18386		-54576	A5
-17623		-23578 -54576	C5
-18387		-54576	A6
-18178 ✓		54576 23579	A5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 70 PG 1, 2, (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8-21-69; JK 8/28/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP — NOT REQ'D

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	8-8-69			8/14/69	8/12/69		8/14/69	
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LE0280	1638

8-25-69
ISSUED BY A FURIO X 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18342		EO NO. A7
CONTROL INFO NO. LDW280B9088		

RESTRICT -11, -13, -15, TO LM-4(34) THRU LM-9(39) & DVT(70), LTA-3(13), TM-5/R(65). WAS LM-4(34) THRU LM-14(44) & LTA-11(23), LTA-3DR/1(460), DVT(70), LTA-3(13), TM-5/R(65).

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3994 PKG68	⑤

REASON FOR EO: NON-BUCKLING DIAGONAL INSTL/SEQ BAY/QDII

DESCRIPTION OF EO: RESTRICTED -11, -13, -15, EFF. BY REMOVING LM-10(40) THRU LM-14(44), LTA-11(23), LTA-3DR/1(460)

GAEC EO RELEASE: 415 — 10-9-69 — HF 10/11/69

MODEL	PRODUCING ACTIVITY NO. EJ	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
LM		LM-14(44) & LTA-11(23)	
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	[illegible]			[illegible]	[illegible]		[illegible]	Bauman
DATE	10/1/69			10-7-69	10/8/69		10/[illegible]/69	10/13/69
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT.~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL; D.S. SEQ BAY LOWER DECK	LDW280-18342	A7

10/3/69
ISSUED BY R. OLECK; D. THORJIUSEN X97222 SECTION VD1 GROUP NO. 335 PL 25

LDW280-18343

PART NO. LDW280-18343-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	DVT (70	2
		LM-15(45)	2
		LM-14(44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
		LM-10(40)	2
		LM-9 (39)	2
		LM-8 (38)	2
		LM-7 (37)	2
		LM-6(36)	2
		LM-5 (35)	2
LM	LDW280-54576	LM-4 (34)	2

PART NO. LDW280-18343-11, -13, -15 & -17

GAEC SCH NO. 51-2

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	DVT (70)	1 EA
		LM-15(45)	1 EA
		LM-14 (44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5 (35)	1 EA
LM	LDW280-54576	LM-4(34)	1 EA

WORK PKG FUNCTION NO 111 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 JK(001) MP-16 9/9/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 19-1433 CCA 586

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY H.DEUTSCH
LAYOUT BY F.MARZELLA
CHECKED BY 8-24-67
GR. LEADER 9/5/67
VEH DES INT 9/11/67
STRUCTURE 9/7/67
STRUCTURE Hilderman 9/7/67
WEIGHTS
PROJ ENGR 9/7
REL GROUP 9/8/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TEE
DESCENT STAGE-SCIENTIFIC EQUIPMENT BAY
LOWER DECK

SIZE B
CODE IDENT NO. 26512
LDW280-18343
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR = 9/15/67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18343-19	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032 X 1 X 3	T6	88	
		-17		WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.040 X 4 X 11	NONE	88	
		-15		WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.040 X 4 X 11	NONE	88	
		-13		TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE NO.33481 X 8	NONE	88	
		LDW280-18343-11	E	TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE NO.33481X8¼	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18343

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

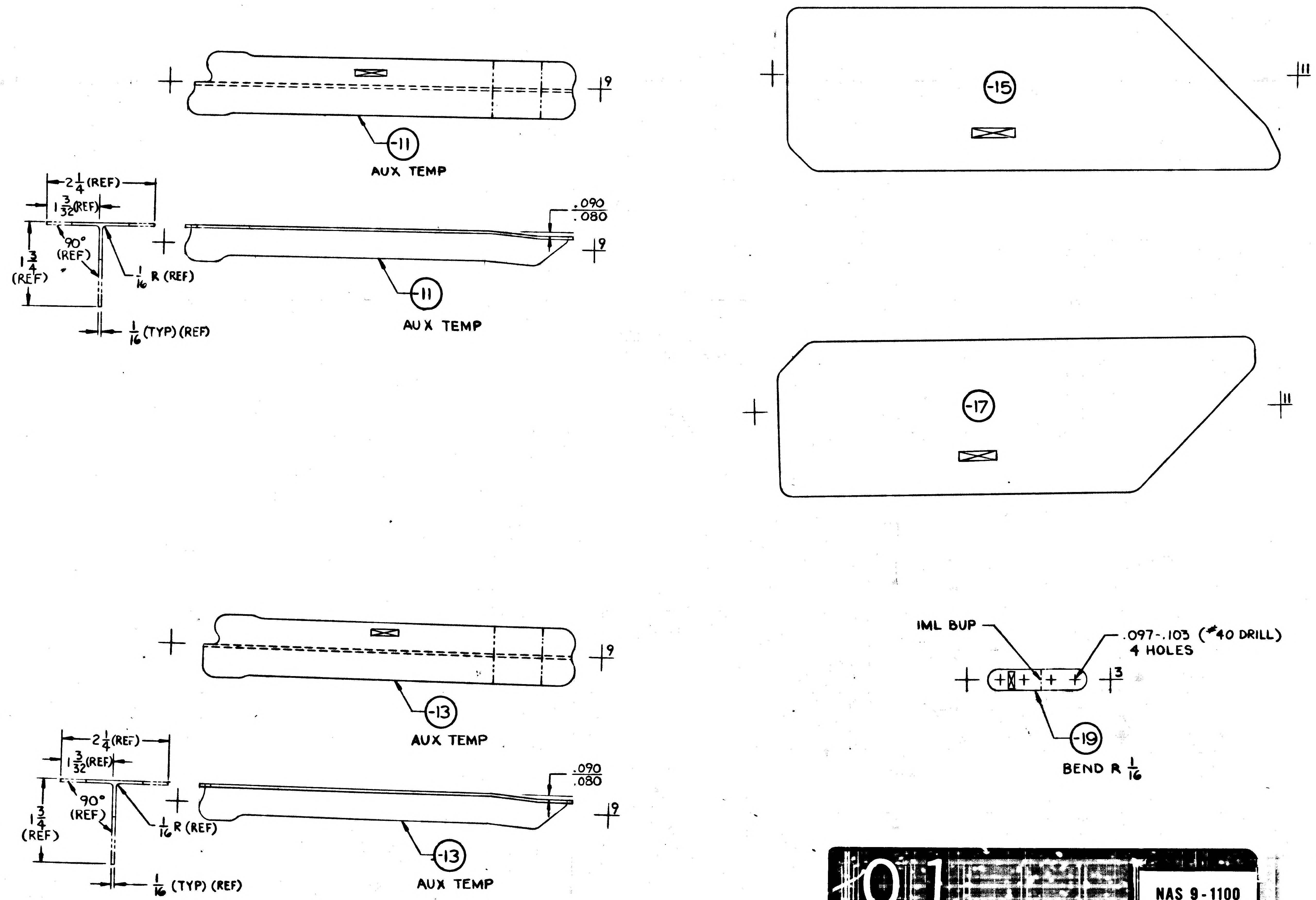
01

NAS 9-1100

~~Tran~~ ~~PN~~ overlay ~~RK~~ ~~8/21/67~~

NOTE.

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. UPON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18343-11, -13, -15 & -17 IS SIMILAR TO LDW280-17711 -13, -15, -17 & -19 RESPECTIVELY



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18343

LDW280-18343

01

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK		
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18343
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 783
CONTROL INFO NO. LDW280A9815

ADD LTA-3(13) EFFECTIVITY TO DASH NO.* OF THE FOLLOWING DWGS.:
QUANTITY SAME AS LM-4(34) THRU LM-15(45)

DWG. NO.	N/A	TITLE	CHG. NO.	DASH NO.*
LDW280-54510	LDW280-54509	SEE DWG.	E 1	-1
M17741	-54576		A2	-11, -13
M17743	-54576		A2	-13
M17744	-54576		A2	-13
M17745	-54576		A2	-11, -12, -13
M17770	-54576		A1	-11
-17883	-23578		B5	-15, -17
-17295	-54576		B4	-13 -14 -19, -20 -21, -22, -23, -24, 25, 26
-18342	-54576		A1	-11, -13, -15, -17
-17623	-54566		B6	-17, -19
-18343	-54576		A1	-11, -13, -15, 17, -19
-18344	-54576		A1	-11, -13, -15, -17, -19
M17746	-54576		A1	-11
M17747	-54576		A2	-11
M17628	-54576		B2	-1
-18348	-54577		A1	-11, -13, -14, -15, 17, -18, -19
-18349	-54575		A1	-11, -12, -13, -14, -15, -16, -17, -18
-18350	-23634		A1	-11, -12
M17748	-54575		A2	-13
-18369	-54586		A1	-11, -13, -15, -16, -17, -19
-18346	-54575		A1	-11, -13, -15
-18356	-54575		A2	-13 -19, -21, 25, -26, -27
LDW280M17769	LDW280-54575	SEE DWG.	A1	-11

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 OK. CCA-586

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3 (13) EFFECTIVITY TO DASH NO.*

GAEC C EO RELEASE: JK 11/1/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-3 (13)		

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP
APPROVED BY: D | DATE 10/23/67 | V.D.I. | SUPPORT | RELIAB. GROUP | GROUP LEADER 10/23/67 | STRESS GROUP 10/23/67 | LIAISON ENGRG | PROJ ENGRG 10/26/67 | 11-1-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 783

10/27 ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 943
CONTROL INFO NO. LDW280B3241

FOR THE FOLLOWING PART NO'S. ADD TM-5/R (65) REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9
-17623-19		2	
-18512-11		4	B1
-17711-25		1	C9
-17711-27		1	
-17792-21		1	B9
-17792-23		1	
-18340-15		1	·A4
-18342-11		1	A3
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13		1	·A1
LDW280-18478-15	SEE DWG.	1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2G (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC EO RELEASE: 5/16/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY								
DATE	5-13-68			5-13-68	5/17/68		5/13/68	5/16/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

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NAS 9-1100

G 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1340
CONTROL INFO NO. LDW280B7427

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18316	✓	A1	SEE DWG
-18317	✓	B1	
-18324	✓	A3	
-18325	✓	B1	
-18326	✓	B1	
-18330	✓	B1	
-18332	✓	B2	
-18340	✓	A5	
-18342	✓	A4	
LDW280-18343	✓	A3	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 3 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: JK 4/16/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1340

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1527
CONTROL INFO NO. LDW 280B 8110

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW 280-18340 ✓	SEE DWG	A6
42 ✓		A5
43 ✓		A4
44		A5
46		A5
48		A4
49		B1
50		A6
51		A4
LDW 280-18352	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 30 & 31 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69; JK 8/9/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY		
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY	PJT				M		Bauman
DATE	7-29-69			7/29/69	8/2/69		8/1/69	8-9-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1527

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO 1638
CONTROL INFO NO. LDW280B 8434

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/ LDW 280 - 17711	SEE DRAWING	LDW280-54576	D3
/ -17792		-54576	C3
/ -18340		-54576	A7
/ -18342		-54576	A6
/ -18343		-54576	A5
-18344		-54576	A6
-18380		-54576	A5
-18386		-54576	A5
-17623		-23578 -54576	C5
-18387		-54576	A6
-18478 ✓		54576 23579	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 1, 2. (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: 8/21/69; JK 8/28/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓; RECORD EO
DISPOSITION OF PARTS: REWORK; SCRAP — NC R'D
APPROVED BY — DATE 8-8-69 — VDI; SUPPORT; RELIAB. GROUP; GROUP LEADER 8/14/69; STRESS GROUP 8/12/69; LIAISON ENGRG; PROJ ENGRG 8/14/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1638

8-25-69
ISSUED BY A FURIO X 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18344

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	DVT(70)	1 EA
		LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
LM	LDW280-54576	LM-4 (34)	1 EA
PART NO. LDW280-18344-13, -15 -17 & -19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	DVT (70)	2
		LM-15 (45)	2
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
		LM-10 (40)	2
		LM-9 (39)	2
		LM-8 (38)	2
		LM-7 (37)	2
		LM-6 (36)	2
		LM-5 (35)	2
LM	LDW280-54576	LM-4 (34)	2
PART NO. LDW280-18344-11		GAEC SCH NO. 51-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO
PRIM NO. 207 JK(001) MP-16 9/9/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433, CCA 586

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY H.DEUTSCH 4/24/67
LAYOUT BY MARZELLA
CHECKED BY JSC 8-28-67
GR. LEADER 9/1/67
VEH DES INT 9/5/67
STRUCTURE 9/7/67
STRUCTURE Hilderman 9/7/67
WEIGHTS
PROJ ENGR 9/7/67
REL GROUP 9/9/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE- SCIENTIFIC EQUIPMENT BAY
LOWER DECK

SIZE B
CODE IDENT NO. 26512
LDW280-18344
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 9-15-67

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18344-19	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040 X 1 X 3	T6	88	
								-17		CLIP			7075	.040 X 1 X 4	T6		
								-15		PLATE			7075-T6	.040 X 1 X 3	NONE		
								-13		PLATE			7075-T6	.040 X 1 X 3	NONE		
								LDW280-18344-11	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.040 X 1 X 3	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18344

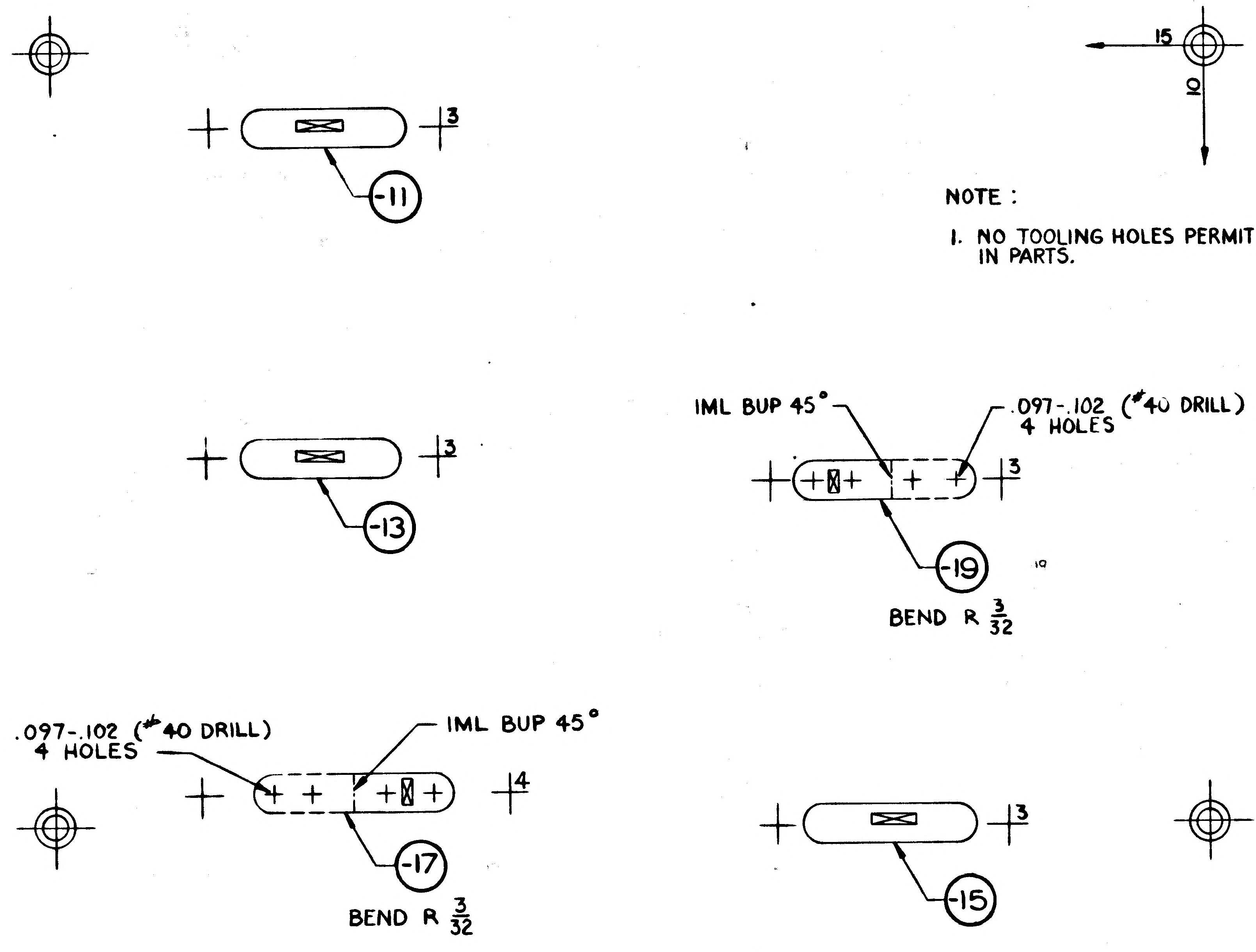
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



NOTE :

1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18344

SCALE FULL

SHEET 3.00

FOR PHOTO REPRODUCTION

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LE0280	EO NO.	783
CONTROL INFO NO.	LDW 30A9815		

ADD LTA-3(13) EFFECTIVITY TO DASH NO.* OF THE FOLLOWING DWGS.:
QUANTITY SAME AS LM-4(34) THRU LM-15(45)

DWG. NO.	N/A	TITLE	CHG. NO.	DASH NO.*
LDW280-54510	LDW280-54509	SEE DWG.	E 1	-1
M17741	-54576		A2	-11, -13
M17743	-54576		A2	-13
M17744	-54576		A2	-13
M17745	-54576		A2	-11, -12, -13
M17770	-54576		A1	-11
-17883	-23578		B5	-15, -17
-17295	-54576		B4	-13-14-19, -20, -21, -22, -23, -24, -25, -26
-18342	-54576		A1	-11, -13, -15, -17
-17623	-54566		B6	-17, -19
-18343	-54576		A1	-11, -13, -15, -17, -19
-18344	-54576		A1	-11, -13, -15, -17, -19
M17746	-54576		A1	-11
M17747	-54576		A2	-11
M17628	-54576		B2	-1
-18348	-54577		A1	-11, -13, -14, -15, -17, -18, -19
-18349	-54575		A1	-11, -12, -13, -14, -15, -16, -17, -18
-18350	-23634		A1	-11, -12
M17748	-54575		A2	-13
-18369	-54586		A1	-11, -13, -15, -16, -17, -19
-18346	-54575		A1	-11, -13, -15
-18356	-54575		A2	-13-19-21, -25, -26, -27
LDW280M17769	LDW280-54575	SEE DWG.	A1	-11

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433 ok. CCA-586

REASON FOR EO	DESCRIPTION OF EO
ALSEP REQUIREMENT	ADDED LTA-3(13) EFFECTIVITY TO DASH NO.*

GAEC C EO RELEASE: JK 11/1/67

MODEL	EFFECTIVITY: ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		✓		APPROVED BY							
				DATE	10/23/67			10/24/67	10/23/67	10/26/67	11-1-67
REVISE DWG	RECORD EO	REWORK	SCRAP	D	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG / PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LE0280	783

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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NAS 9-1100

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GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

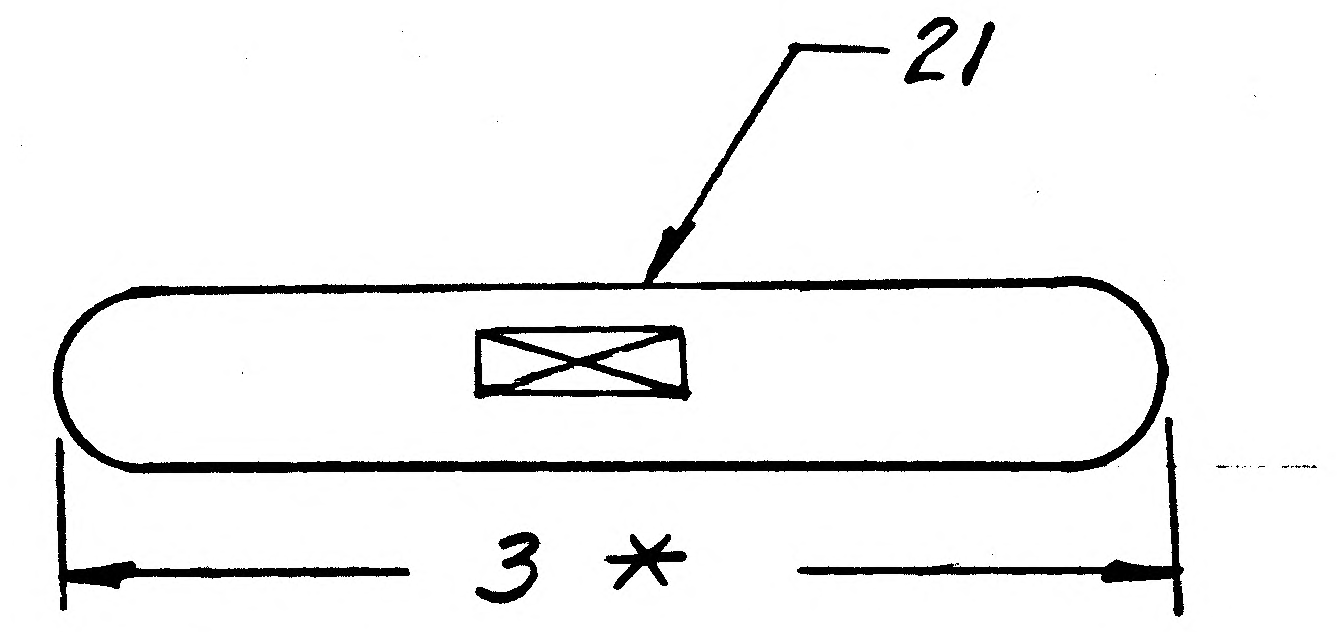
IG 32.1 REV 3-65

DWG. NO. LDW280-18344		EO NO. A2	
CONTROL INFO NO. LM-2-4283			

IN F/D & M/B

CREATE -21 (-21 IDENTICAL TO -15 EXCEPT AS SHOWN) EFF LM-4 (34) thru LM-15(45) DVT (70)

RESTRICT -15 TO LTA-3 (13) ONLY



* LOFTED DIMENSION

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD1433 CCA586

REASON FOR EO
LONGER PART REQUIRED TO PICK UP EXISTING FASTENERS

DESCRIPTION OF EO
IN F/D, B/M & MB
CREATED -21, EFF LM-4(34) thru LM-15(45), DVT (70)
RESTRICTED -15 TO LTA-3D(13) ONLY

GAEC EO RELEASE JK 02025 (2)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34) THRU LM-15(45)	
LM		LTA 3D(13)	
LM		DVT(70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	REWORK	-15 SCRAP

APPROVED BY	JAS			—	MBS	CH	JLP	Botte
DATE	12-21-67			—	12/11/67	12/11/67	12-21-67	12-12-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE DESCENT STAGE-SCIENTIFIC EQUIPT BAY LOWER DECK	LDW280-18344	A2

ISSUED BY LIAISON L.J.BARATELLI x 3604 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280	EO NO. 943
CONTROL INFO NO. LDW280B3241	

FOR THE FOLLOWING PART NO'S. ADD TM-5/R$^{(65)}$ REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9
-17623-19		2	
-18512-11		4	B1
-17711-25		1	C9
-17711-27		1	
-17792-21		1	B9
-17792-23		1	
-18340-15		1	·A4
-18342-11		1	A3
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13		1	·A1
LDW280-18478-15	SEE DWG.	1	

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 3075 CCA 586 PKG 2G (R) (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
ADD TM-5/R(65) REQMTS.	ON (*) ADDED TM-5/R(65) REQMTS.	5/16/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
LM		TM-5/R(65)		✓		NOT REQD	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5/16/68

PRIORITY C	DRAWING TITLE SEE DWG.	DRAWING NO. LEO 280	EO NO. 943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1360
CONTROL INFO NO. LDW280B7428

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18344 ✓	A4	SEE DWG.
-18346	A4	
-18348	A3	
-18349	A9	
-18350	A5	
-18351	A3	
-18352	B1	
-18353	B1	
-18355	B1	
LDW280-18356	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD3587 PKG54 PG4 CCA1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JLG			PJH	WJH			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/14/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1360

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 25

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NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1527
CONTROL INFO NO. LDW280B 8110

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18340 ✓	SEE DWG	A6
42 ✓		A5
43 ✓		A4
44		A5
46		A5
48		A4
49		B1
50		A6
51		A4
LDW280-18352	SEE DWG	B2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 30 & 31	(5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69; JK 8/9/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted])	
		(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8/2/69		7/-/69	8-9-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1527

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1638
CONTROL INFO NO. LDW280B 8434

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/ LDW 280 - 17711	SEE DRAWING	LDW280-54576	D3
/ -17792		-54576	C3
/ -18340		-54576	A7
/ -18342		-54576	A6
/ -18343		-54576	A5
/ -18344		-54576	A6
-18380		-54576	A5
-18386		-54576	A5
-17623		-23578 -54576	C5
-18387		-54576	A6
-18478 ✓		54576 23579	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 1, 2. (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8-21-69; JK 8-28-69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D
APPROVED BY: 8-8-69 VDI
8/14/69 8/12/69 8/13/69
SUPPORT / RELIAB. GROUP / GROUP LEADER / STRESS GROUP / LIAISON ENGRG / PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO280
EO NO.: 1638

8-25-69
ISSUED BY A FURIO X 26046 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10, 2.00 & 3.00						EO A1 LCD-1843	EO A1, INITIAL DWG RELEASE. PARTS MADE PER EO	LM-2(32) LM3(33)	NOT	REC'D	R. ROSARIO 8-1-67 JK		8/17/67
	2	1.10 & 3.00					✓	EO A2 LCD-1843	REF EO A1 ON -11, ADDED 1/8 R(TYP), (TYP) TO 5/8, 1/4R, 1-5/16 & CORRECTED BOTTOM VIEW TO AGREE WITH TOP VIEW.						

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18345	A
SCALE	NONE		SHEET 1.10

ENG 77.3 5-66

01

NAS 9-1100

LDW280-18345 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23677	LM3(33)	1 EA
LM	LDW280-23677	LM2(32)	1 EA

PART NO. LDW280-18345-13, -15 & -16

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23677	LM3(33)	2
LM	LDW280-23677	LM2(32)	2

PART NO. LDW280-18345-11

WORK PKG FUNCTION NO. 111 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		300				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -16

GRUMMAN REL INFO A

PRIM NO. 207 JK(00) MP 16A 8/17

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE
LCD-1843

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	R. ROSARIO 8-1
LAYOUT BY	D. RAGAS
CHECKED BY	J. Kartzman 8-9-67
GR LDR	J. Strakosch
VDI	G. Cusatis 8/15
STRUCT	NM 8-15
STRUCT	Hilderman 8-15
WEIGHTS	

RELIABILITY
PROJ ENGR 8/16
REL GROUP 8/16/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE
DASH POT & LINE SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18345 A (A)
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18345-16	E	ANGLE	AL ALY SH	QQ-A-250/12	7075-0	.050 X 2 X 4	T6	88	
		↕ -15	↕	ANGLE	↕	↕	↕	.050 X 2 X 4	↕	↕	
		↕ -13	↕	COVER	↕	↕	↕	.050 X 5 X 5	↕	↕	
		LDW280-18345-11	E	CHANNEL	AL ALY SH	QQ-A-250/12	7075-0	.050 X 7 X 15	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP-14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18345	A Ⓐ

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

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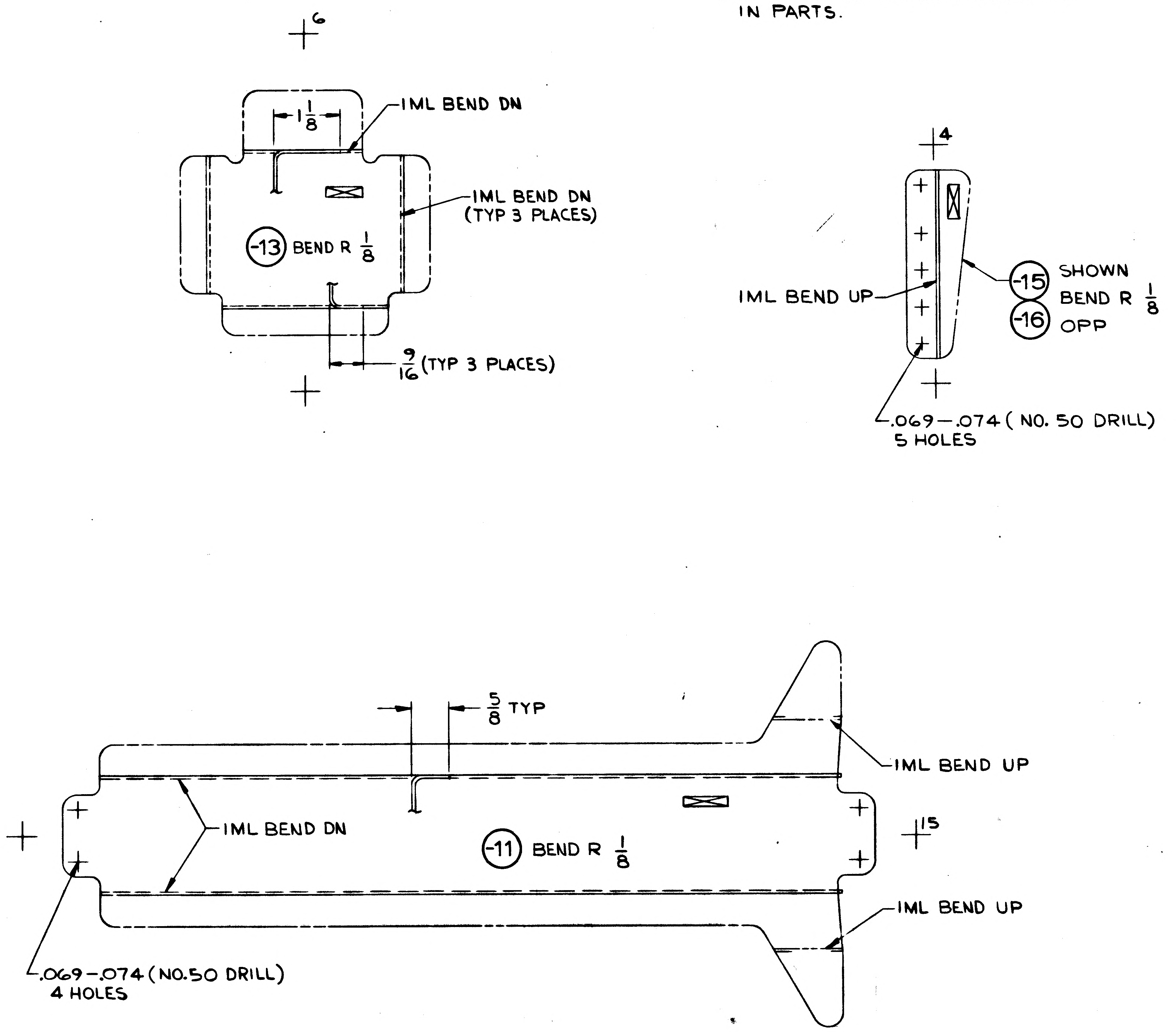
NAS 9-1100

4 LDW280-18345 A

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.


6
IML BEND DN
$1\frac{1}{8}$
IML BEND DN (TYP 3 PLACES)
-13 BEND R $\frac{1}{8}$
$\frac{9}{16}$ (TYP 3 PLACES)
4
IML BEND UP
-15 SHOWN
BEND R $\frac{1}{8}$
-16 OPP
.069-.074 (NO. 50 DRILL) 5 HOLES
$\frac{5}{8}$ TYP
IML BEND UP
IML BEND DN
-11 BEND R $\frac{1}{8}$
15
IML BEND UP
.069-.074 (NO.50 DRILL) 4 HOLES

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18345	A
MODEL OR END ITEM	SCALE FULL			SHEET 3.00

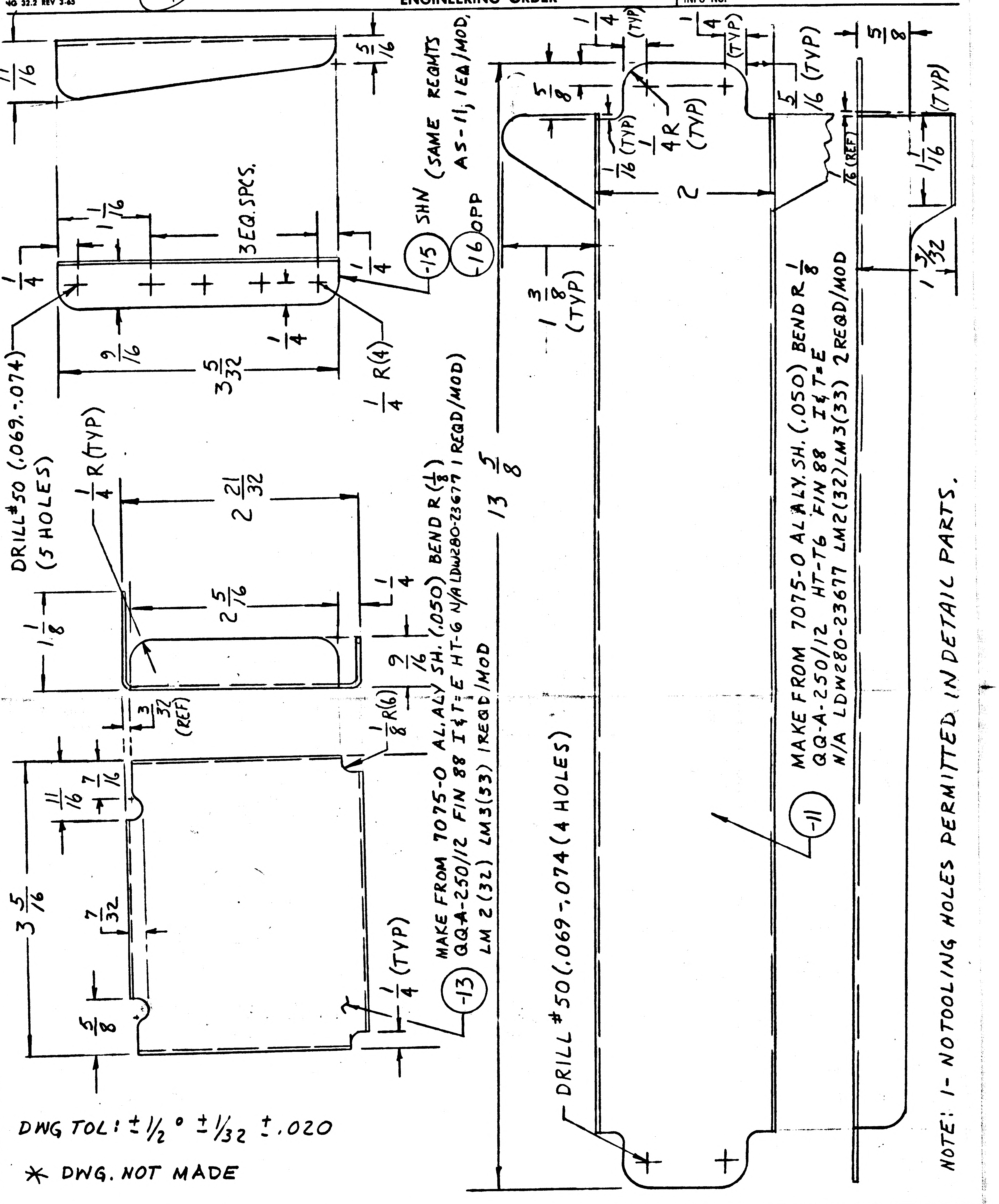
2 FOR PHOTO REPRODUCTION 1

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO.	LDW 280 -18345	EO NO.	A1
CONTROL INFO NO.	LDW280A-8049		

NG 32.2 REV 3-65



11/16
5/16
1 1/16
3 EQ. SPCS.
1/4
1/4
9/16
3 5/32
1/4 R(4)
-15 SHN (SAME REQMTS AS -11, 1 EA/MOD,
-16 OPP
DRILL #50 (.069-.074) (5 HOLES)
1/4 R (TYP)
1 1/8
2 5/16
2 21/32
1/4
9/16
3/32 (REF)
1/8 R(6)
3 5/16
11/16
7/16
7/32
5/8
1/4 (TYP)
13 5/8
1 3/8 (TYP)
5/8
1/16 (TYP)
1/4 (TYP)
1/4 R (TYP)
2
5/16 (TYP)
1/16 (REF)
5/8
1/16
1 3/32
(TYP)
DRILL #50 (.069-.074 (4 HOLES)

-13 MAKE FROM 7075-0 AL.ALY. SH. (.050) BEND R (1/8)
QQ-A-250/12 FIN 88 I & T=E HT-6 N/A LDW280-23677 1 REQD/MOD
LM 2(32) LM3(33) 1 REQD/MOD

-11 MAKE FROM 7075-0 AL.ALY. SH. (.050) BEND R 1/8
QQ-A-250/12 HT-T6 FIN 88 I & T=E
N/A LDW280-23677 LM2(32) LM3(33) 2 REQD/MOD

NOTE: 1- NOTOOLING HOLES PERMITTED IN DETAIL PARTS.

DWG TOL: ±1/2° ±1/32 ±.020

* DWG. NOT MADE

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD-1843

REASON FOR EO	DESCRIPTION OF EO
TO PREVENT DAMAGE TO DIFFERENTIAL TRANSDUCERS	EO A1 INITIAL DWG. RELEASE. PARTS MADE PER EO

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2(32) LM3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								GAEC EO RELEASE
* REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP	DATE 7/19/67	VDI	SUPPORT	RELIAB. GROUP	— GROUP LEADER	7/21/67 STRESS GROUP	LIAISON ENGRG	7-21 PROJ ENGRG	7-22-67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL D/S - DASHPOT & LINE SUPPORT	LDW280-18345	A1

ISSUED BY DON RAGAS X1153 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

B

ENG 32.1 REV 3-65

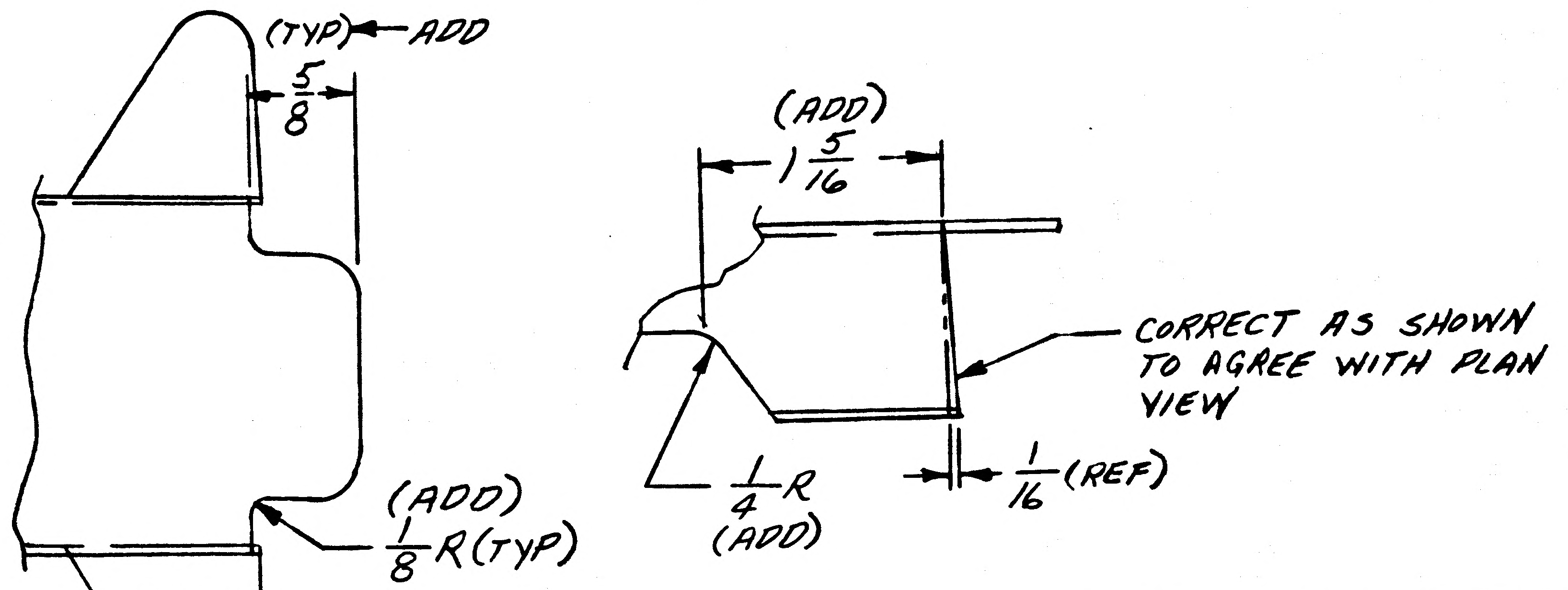
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18345
EO NO. A2
CONTR INFO N. LM-5-15729

THIS IS A REVISION OF EO A1

RELEASED BY LIAISON

ON -11 REVISE THE FOLLOWING DIMENSIONS:



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD-1843

REASON FOR EO: TO PREVENT DAMAGE TO DIFFERENTIAL TRANSDUCERS

DESCRIPTION OF EO: REF EO A1
ON-11, ADDED 1/8R(TYP), (TYP) TO 5/8, 1/4R, 1 5/16
& CORRECTED BOTTOM VIEW TO AGREE WITH TOP VIEW.

GAEC EO RELEASE: C 5 JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
		LM-3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JaP			—		CH		
✓		NOT	REQ'D	DATE	7/29/67			—	7-26-67	7-26-67	7/29/67	7-26-67
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GP UP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: CHANNEL - D/S - DASH POT & LINE SUPPORT
DRAWING NO. LDW280-18345
EO NO. A2

ISSUED BY LIAISON - J. McGILL X-86226 SECTION VDI GROUP NO.____ PL 25

01

NAS 9-1100

A RELEASED BY LIAISON

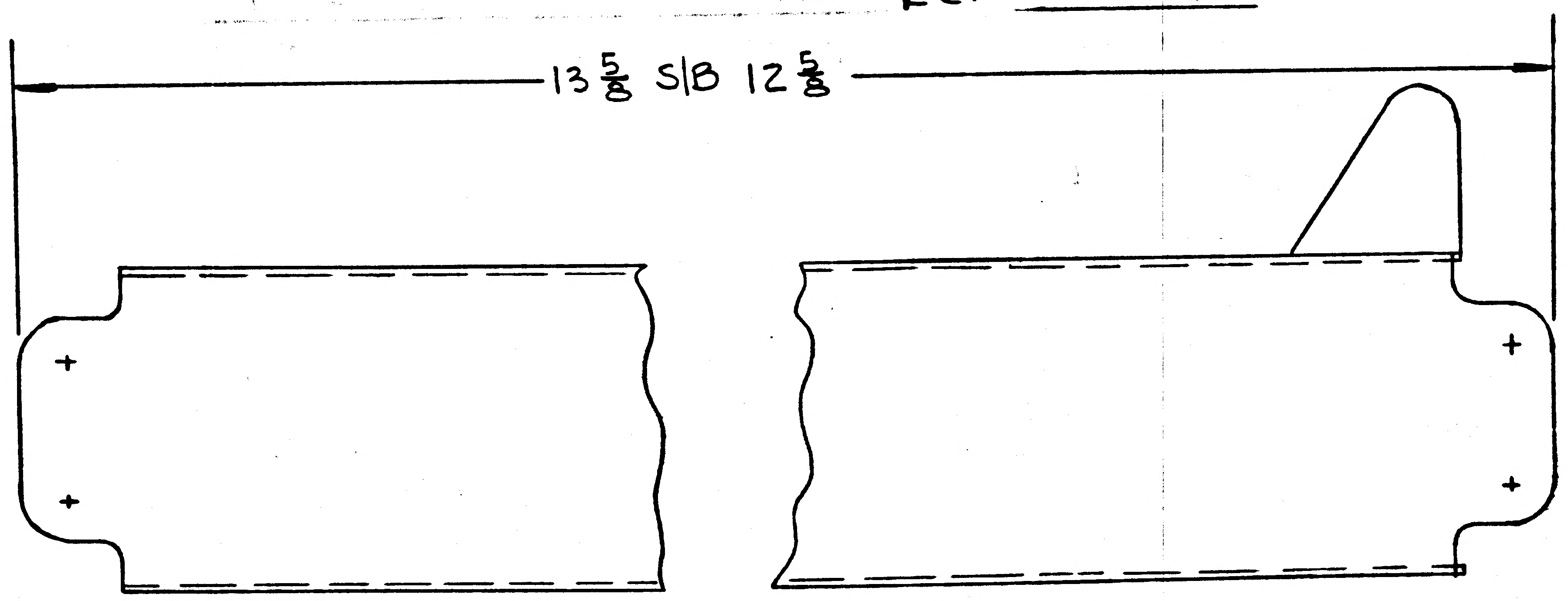
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW 280-18345		EO NO. B1	
CONTROL INFO NO.	LM-5-15805		

ON -11

REF: E.O. A1



IN FLD, B/M, & MOD/BLK (ON-15) (1) REQ'D (5/8) (2); DELETE -16

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 1843

REASON FOR EO: INCORRECT LENGTH

DESCRIPTION OF EO: IN FLD & B/M, MOD/BLK, -15 (2) REQ'D (WAS) (1), REMOVED -16, (ON-11) $12\frac{5}{8}$ WAS $13\frac{5}{8}$ REF EO A)

GAEC C EO RELEASE: VK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
		LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	-16

APPROVED BY	JaP				JF	JF		
DATE	8/14/67				8-2-67	8-2-67	8/14/67	8/14/67
8/2/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL - DESCENT STAGE DASHPOT & LINE SUPPORT	LDW 280-18345	B1

ISSUED BY LIAISON A. VENTO X-86757 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 —
EO NO. 750
CONTROL INFO NO. LDW 82 – 3336

FOR THE FOLLOWING PARTS ADD LTA-5 EFF N/A LDW280 - 25677

PART NO. *	TITLE	QTY/MOD	CHG
✓ LDW280 - 18345-11	CHANNEL D/S DASH POT & LINE SUPPORT	2/MOD	B-2
-18345-13		1/MOD	"
-18345-15		2/MOD	"
-18341-11	BRACKET D/S DASH POT SUPPORT	2/MOD	B-2
-18341-13		4/MOD	"
-18341-15		4/MOD	"
-18341-16		4/MOD	"
-18341-17		4/MOD	"

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑

LCD-1843

82

REASON FOR EO: TO PREVENT DAMAGE TO DIFFERENTIAL TRANSDUCERS

DESCRIPTION OF EO: FOR * ADDED LTA-5 (15) EFF

GAEC EO RELEASE: JK 10/19/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-5(15)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD

	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	GWB	Jap		N/A		
DATE	9/29/67	10/18/67		10/ /67	10/9/67	10/ /67
	VDI	~~SUPPORT VDI~~				

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO. LEO280 —

EO NO. 750

ISSUED BY G. BARNES / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 82

01

NAS 9-1100

LDW280-18346

PART NO. LDW280-18346-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	DVT(70)	2
		LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
LM	LDW280-54575	LM-4(34)	2

PART NO. LDW280-18346-11 & -15

GAEC SCH NO. 51-2

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	DVT(70)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54575	LM-4(34)	1 EA

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO.110

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO

PRIM NO. 207 — JK(001) MP-M 9/20/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

S ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD1433 (CCA586)

OK

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	J.GARRAFFO 9-25-67	RELIABILITY	
LAYOUT BY	F. MADDEN 9/20/67		
CHECKED BY	D. FASS 9-26-67		
GR LEADER	J. Strakosch 9/26/67		
VEH DES INT	J. Strakosch 9/26/67		
STRUCTURES	9/29/67	PROJ ENGR	W. Kozuch
STRUCTURES	9/29	REL GROUP	9/28/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE~SCIENTIFIC EQUIP.
SUPPORT~UPPER DECK

SIZE B | CODE IDENT NO. 26512 | LDW280-18346

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR. 10/2/67

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18346-15	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.040 X 3 X 24	T6	88	
								LDW280-18346-13	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032 x 1 x 3	T6	88	
								LDW280-18346-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.020 X 2 x 24	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18346

SCALE NONE

SHEET 2.00

ENG 77.2 7-66

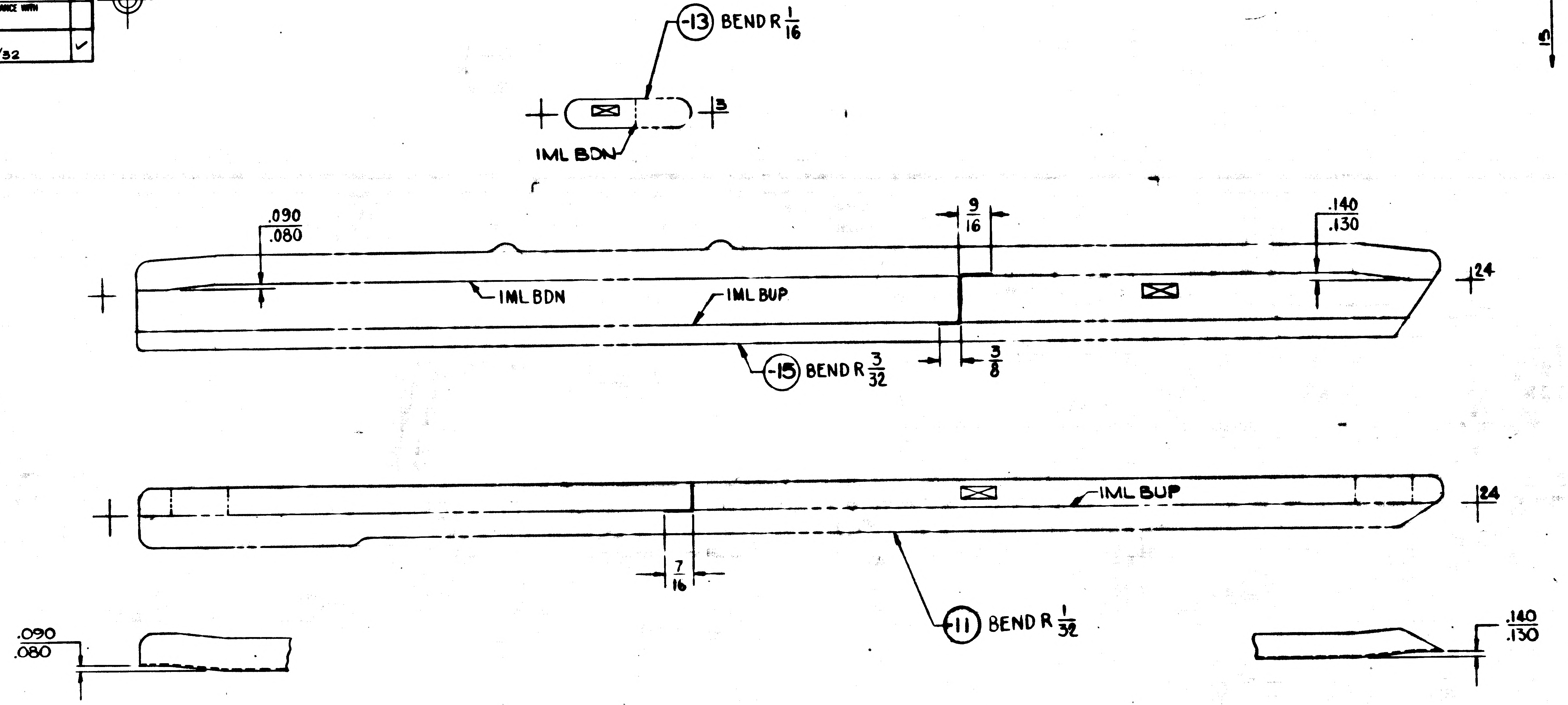
01

NAS 9-1100

LDW280-18346

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



-13 BEND R 1/16
IML BDN
3
.090
.080
IML BDN
IML BUP
9/16
.140
.130
24
-15 BEND R 3/32
3/8
IML BUP
24
7/16
-11 BEND R 1/32
.090
.080
.140
.130

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18346

SCALE FULL

SHEET 5.00

2 FOR PHOTO REPRODUCTION 1

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 783
CONTROL INFO NO. LDW280A9815

ADD LTA-3(13) EFFECTIVITY TO DASH NO.* OF THE FOLLOWING DWGS.:
QUANTITY SAME AS LM-4(34) THRU LM-15(45)

DWG. NO.	N/A	TITLE	CHG. NO.	DASH NO.*
LDW280-54510	LDW280-54509	SEE DWG.	E1	-1
M17741	-54576		A2	-11, -13
M17743	-54576		A2	-13
M17744	-54576		A2	-13
M17745	-54576		A2	-11, -12, -13
M17770	-54576		A1	-11
-17883	-23578		B5	-15, -17
-17295	-54576		B4	-13, -14, -19, -20, -21, -22, -23, -24, -25, -26
-18342	-54576		A1	-11, -13, -15, -17
-17623	-54566		B6	-17, -19
-18343	-54576		A1	-11, -13, -15, -17, -19
-18344	-54576		A1	-11, -13, -15, -17, -19
M17746	-54576		A1	-11
M17747	-54576		A2	-11
M17628	-54576		B2	-1
-18348	-54577		A1	-11, -13, -14, -15, -17, -18, -19
-18349	-54575		A1	-11, -12, -13, -14, -15, -16, -17, -18
-18350	-23634		A1	-11, -12
M17748	-54575		A2	-13
-18369	-54586		A1	-11, -13, -15, -16, -17, -19
-18346	-54575		A1	-11, -13, -15
-18356	-54575		A2	-13, -19, -21, -25, -26, -27
LDW280M17769	LDW280-54575	SEE DWG.	A1	-11

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 ok. CCA-586

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
ALSEP REQUIREMENT	ADDED LTA-3(13) EFFECTIVITY TO DASH NO.*	JK 11/1/67

MODEL	EFFECTIVITY: ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY								
✓		✓		DATE	10/23/67			10/24/67	10/23/67		10/26/67	11-1-67
				D	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LE0280	783

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01 NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 969
CONTROL INFO NO. LDW280B3375

FOR THE FOLLOWING PARTS ADD TM 5/R(65) REQUIREMENTS, N/A LDW280-54575 FOR THE QUANTITIES NOTED

DWG NO *	TITLE	QUANT REQD	CHANGE NO.
LDW280-17712-13	SEE DWG	1	A7 ✓
-14		1	
-21		1	
-17712-22		1	
-17714-11		2	C6 ✓
-13		2	
-19		4	
-21		8	
-23		2	
-25		2	
-27		2	
-17714-29		2	
-17442-11		1	B4 ✓
-17442-13		1	
-18346-11		1	A2 ✓
-18346-13		3	
-18346-15		1	
-18356-13		1	A8
-19		1	
-31-1		1	
-23		2	
-33		1	
-34		1	
-35		1	
-36		1	
-18356-37		4	
-17294-23		1	B6
-17294-27		1	
-18370-17		1	A3
-19		1	
-21		1	
LDW280-18370-22	SEE DWG	1	

DWG NO. *	TITLE	QUANT REQD	CHANGE NO.
	SEE DWG		
LDW280-18322-11		1	A3
-12		1	
-13		1	
-18372-14		1	
-18487-11		1	A1
-18379-15-1		1	A5
M17266-3		1	C6
M17266-4		1	
M17629-1		1	B5
M17640-1		1	B8
M17640-2		1	
M17748-13		1	A4
M17766-11		1	A3
M17769-11		1	A2
M17952-11		1	A1
M17806-11		1	A2
-18349-13-1		1	A8
-14-1		1	
-15		1	
-16		1	
-23		1	
-24		1	
-27		1	
-28		1	
-29		1	
LDW280-18349-30	SEE DWG	1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3075 CCA 586 PKG 2U (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON-(*) ADDED TM-5/R(65) REQMTS

GAEC EO RELEASE: K 5/23/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JAB				W/H			
DATE	5/13/68			5-13-68			5/13/68	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 969

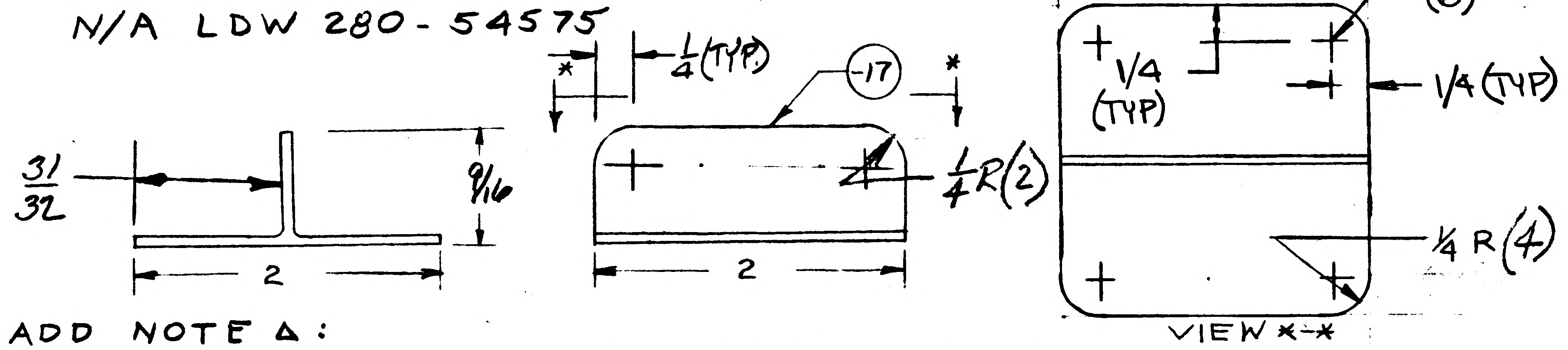
5-17-68
ISSUED BY T.COTTER x3352/P.THORJUSEN SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18346		EO NO. A3
CONTROL INFO NO. LDW 280B 6335		

ADD ON B/M, M/B & F/D -17 TEE, GS 183A13DG, HEAT TREAT TO T73511 PER LSP-14-5201, FINISH 88, 7075-T6511, GOV'T SPEC QQ-A-200/11, 2 REQ'D/MOD.
EFF. LM-5(35) THRU LM-15(45), DVT(70) & TM-5R(65)
N/A LDW 280-54575



ADD NOTE Δ:
-17 "CREW HAZARD - PARTS REQUIRE SPECIAL HANDLING TO INSURE REMOVAL OF ALL SHARP EDGES AND BURRS"

* EO REF ONLY
Δ USE NEXT AVAILABLE NOTE NO

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 1433 PKG 31 CCA 586 LCD 3075 PKG 5 CCA 586

REASON FOR EO: RETAIN BOOM IN LOW ATTITUDE

DESCRIPTION OF EO: ADDED -17, NOTE Δ & VIEW *-*

GAEC EO RELEASE: JK 12/2/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35) THRU	
		LM-15(45),	DVT(70)
		& TM-5R/65	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	JAP			G#				JP	
DATE	11/22/68			11/22/68	11/25/68			11/26/68	12-3-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY: C
DRAWING TITLE: ANGLE DESCENT STAGE - SCIENTIFIC EQUIP SUPPORT - UPPER DECK
DRAWING NO.: LDW 280-18346
EO NO.: A3

CDR 11/27/68
X 84662
ISSUED BY R CABRAL / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1360
CONTROL INFO NO. LDW280B7428

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18344 ✓	A4	SEE DWG.
-18346 ✓	A4	
-18348	A3	
-18349	A9	
-18350	A5	
-18351	A3	
-18352	B1	
-18353	B1	
-18355	B1	
LDW280 -18356	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG54 PG4 CCA1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/18/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				PJF	WJH			
DATE	4/18/69			4-26-9	4/18/69		4/9/69	4/18/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1360

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 25

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NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 EO NO. 1527
CONTROL INFO NO. LDW280B 8110

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW280-18340 ✓	SEE DWG	A6
42 ✓		A5
43 ✓		A4
44 ✓		A5
46 ✓		A5
48		A4
49		B1
50		A6
51		A4
LDW280-18352	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 30 & 31 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: Saic 8-6-69; JK 8/9/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP: NOT REQ'D

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY	PJ				M			Bauman
DATE	7-29-69			7/29/69	8/2/69		8/1/69	8-9-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1527

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1647
CONTROL INFO NO. LDW280B - 8453

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
✓ LDW280 - 17712	SEE DRAWING	LDW280-54575	B3
✓ 17714		-54575	D4
✓ 17442		-54575	B7
✓ 18346		-54575	A6
18356		-54575	B3
17294		-54575	C3
18370		~~-23578~~ -54575	A6
18372		-54575	A6
18349		-54575	B2
18379		-54575	A8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 9 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: SB 8.29 / JK 8/28/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP: NOT REQ'D
APPROVED BY: [illegible] DATE: 8-8-69 VDI
SUPPORT / RELIAB. GROUP / GROUP LEADER 8/8/69 / STRESS GROUP 8/12/69 / LIAISON ENGRG / PROJ ENGRG 8/12/69 8/28/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1647

8-27-69
ISSUED BY F. OLIVERI EXT 86098 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18348

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

PART NO. LDW280-18348-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54577	DVT (70)	2
LM	LDW280-54577	LM-15(45)	2
↑	↑	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
↓	↓	LM-5(35)	2
LM	LDW280-54577	LM-4(34)	2

GAEC SCH NO. 51-2

PART NO. LDW280-18348-11-13-14-15-17-18

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54577	DVT (70)	1 EA
LM	LDW280-54577	LM-15(45)	1 EA
↑	↑	LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
↓	↓	LM-5(35)	1 EA
LM	LDW280-54577	LM-4(34)	1 EA

GAEC SCH NO. 51-2

WORK PACKAGE FUNCTION #111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED ~

LAST DASH NO. USED -19

GRUMMAN REL INFO			
PRIM NO.	JK(001)		
207	MP-16-9/8/67		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD # 1433 CCA 586

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	W. CONROY 8-22-67	RELIABILITY	
LAYOUT BY	F. MADDEN		
CHECKED BY	M 8·24·67		
GR LEADER	J. Stralcowski 9/5/67		
VEH DES INT	9/7/67		
STRUCTURES	W/H 9/6/67	PROJ ENGR	9/7
STRUCTURES	Wilderman 9/6/67	REL GROUP	9/7/67
WEIGHT			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE-SCIENTIFIC EQUIPMENT
SUPPORT INBOARD BEAM

SIZE	CODE IDENT NO.	
B	26512	LDW280-18348

SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR = 9/12/67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18348-19	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.063 x 4 x 22	T6	88	
		-18		ZEE				.045 x 2 x 22			
		-17		ZEE				.045 x 2 x 22			
		-15		STIFFENER				.040 x 2 x 22			
		-14		CLIP				.032 x 2 x 3			
		-13		CLIP				.032 x 2 x 3			
		LDW280-18348-11	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.040 x 2 x 22	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						38	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18348

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

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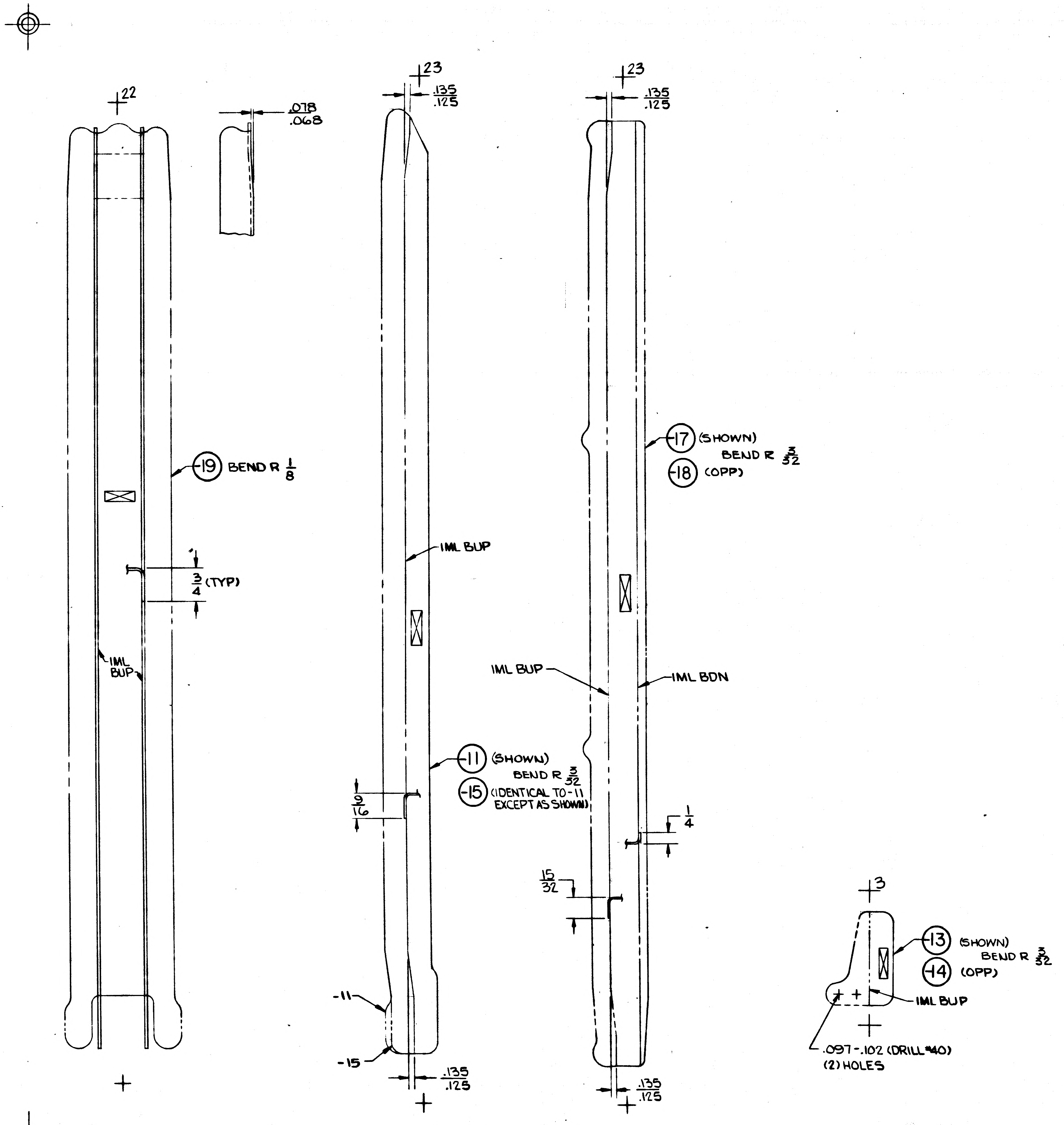
NAS 9-1100



22
.078
.068
-19 BEND R 1/8
3/4 (TYP)
IML BUP
23
.135
.125
IML BUP
-11 (SHOWN) BEND R 3/32
-15 (IDENTICAL TO -11 EXCEPT AS SHOWN)
9/16
-11
-15
.135
.125
23
.135
.125
-17 (SHOWN) BEND R 3/32
-18 (OPP)
IML BUP
IML BDN
1/4
15/32
.135
.125
3
-13 (SHOWN) BEND R 3/32
-14 (OPP)
IML BUP
.097-.102 (DRILL #40) (2) HOLES
30
25

NOTE
1-NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE [illegible] FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM MODEL OR END ITEM	SIZE F	CODE IDENT NO. 26512	LDW280-18348
	SCALE FULL		SHEET 3.00

FOR PHOTO 1 REPRODUCTIO

LDW280-18348

LDW280-18348

ENG 73-5 6-64

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 783
CONTROL INFO NO. LDW280A9815

ADD LTA-3(13) EFFECTIVITY TO DASH NO.* OF THE FOLLOWING DWGS.:
QUANTITY SAME AS LM-4(34) THRU LM-15(45)

DWG. NO.	N/A	TITLE	CHG. NO.	DASH NO.*
LDW280-54510	LDW280-54509	SEE DWG.	E 1	-1
M17741	-54576		A2	-11, -13
M17743	-54576		A2	-13
M17744	-54576		A2	-13
M17745	-54576		A2	-11, -12, -13
M17770	-54576		A1	-11
-17883	-23578		B5	-15, -17
-17295	-54576		B4	-13-14-19, -20-21, -22, -23, -24, -25, -26
-18342	-54576		A1	-11, -13, -15, -17
-17623	-54566		B6	-17, -19
-18343	-54576		A1	-11, -13, -15, -17, -19
-18344	-54576		A1	-11, -13, -15, -17, -19
M17746	-54576		A1	-11
M17747	-54576		A2	-11
M17628	-54576		B2	-1
-18348	-54577		A1	-11, -13, -14, -15, -17, -18, -19
-18349	-54575		A1	-11, -12, -13, -14, -15, -16, -17, -18
-18350	-23634		A1	-11, -12
M17748	-54575		A2	-13
-18369	-54586		A1	-11, -13, -15, -16, -17, -19
-18346	-54575		A1	-11, -13, -15
-18356	-54575		A2	-13, -19, -21, -25, -26, -27
LDW280M17769	LDW280-54575	SEE DWG.	A1	-11

(5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 OK. CCA-586

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3(13) EFFECTIVITY TO DASH NO.*

GAEC C EO RELEASE: JK 11/1/67

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
✓		✓		DATE: D	10/23/67 V.D.I.			10/24/67	10/23/67		10/24/67	11-1-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 783

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 955
CONTROL INFO NO. LDW280B3376

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQUIREMENTS, N/A LDW280-54577 FOR QUANTITIES NOTED.

DRAWING NO.(*)	TITLE	REQ'D.	CHG. NO.
LDW280-17713-15	SEE DRAWING	2	C6
-17713-17		1	
-17713-18		1	
-17713-19		1	
-17713-20		1	
-17715-11		1	B6
-17715-13		1	
-18348-11		1	A2
-18348-13		1	
-18348-14		1	
-18348-15		1	
-18348-17		1	
-18348-18		1	
-18348-19		2	
LDW280-18378-13	SEE DRAWING	1	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3075 CCA586 PKG 2R (5)

GAEC EO RELEASE: JK 5/18/68

REASON FOR EO: ADD TM-5/R(65) REQUIREMENTS

DESCRIPTION OF EO: ON-* ADD TM-5/R(65) REQUIREMENTS

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP — NOT REQD

APPROVED BY								
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-18-68
	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LE0280
EO NO.: 955

5-17-68
ISSUED BY E. RANSOM / G. HANSMANN X3352 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1360
CONTROL INFO NO. LDW280B7428

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18344 ✓	A4	SEE DWG.
-18346 ✓	A4	
-18348 ✓	A3	
-18349	A9	
-18350	A5	
-18351	A3	
-18352	B1	
-18353	B1	
-18355	B1	
LDW280 -18356	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG54 PG4 CCA1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				PJF	WJH			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/8/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1360

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 25

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NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1527
CONTROL INFO NO. LDW280B8110

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18340 ✓	SEE DWG	A6
42 ✓		A5
43 ✓		A4
44 ✓		A5
46 ✓		A5
48 ✓		A4
49		B1
50		A6
51		A4
LDW280-18352	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 30 & 31 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69; 8/9/9; Bauman 8-9-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D | REWORK | SCRAP
APPROVED BY | DATE 7-29-69 | VDI | SUPPORT | RELIAB. GROUP | GROUP LEADER 7/29/69 | STRESS GROUP M 8/2/69 | LIAISON ENGRG | PROJ ENGRG 8/1/69 | ~~CONT~~
PRIORITY C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1527

8-26-64
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1641
CONTROL INFO NO. LDW280B 8441

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW 280 -	SEE DRAWING	LDW280	
-17882		-23578	B6
-17883		-23578	C3
M17628		-23578	C2
-18381		-23578	A7
-17713		-54577	D3
-17715		-54577	C3
-18348		-54577	A5
-18378		-54577	A6
-18616		-54679	A2
LDW 280 - 71512		LDW280 -54679	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 4,5,6,7,8 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: 8-27-9; JK 8/28/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK, SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	8-8-69			8/8/69	8/12/69		8/1-/69	8-27-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1641

ISSUED BY: 8-26-69 A. FURIO X86046
SECTION: VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1, 1.10		D					INC LEO 280-783 ADDED SH 1.10	LTA-3(13)			D. STELLABOTTE 3-20-69		
	2	3.00							INC EO A2	LTA-3D(13) LM-4 THRU LM-15, DVT(70)					
	3	1, 2.00, 3.00		B					INC EO A3	LM-4 THRU LM-15, LTA-3(13), DVT(70)					
	4	1,2.00,3.00							INC EO A4						
	5	1,2.00,3.00		S					INC EO A5	LM-4 THRU LM-15, DVT(70)					
	6	3.00							INC EO A6						
	7	1,2.00,3.00		G					INC EO A7						
	8	1.00							INC LEO 280-969 R.L.	TM-5/R(65)			NISBET 3-26-69		
	9	1.00						Ⓡ	INC LEO 280-1360	LM-15		H.D			

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18349	A

SCALE NONE SHEET 1.10 Ⓡ

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18349 A

LM	LDW280-54575	LTA-3(13)	1 EA.
PART NO. LDW280-18349			
-11, -12, -13, -14 -21 & -22			
LM	LDW280-54575	TM-5/R(65)	1 EA
LM	LDW280-54575	DVT (70)	1 EA.
		LM-14(44)	1 EA.
		LM-13(43)	1 EA.
		LM-12(42)	1 EA.
		LM-11(41)	1 EA.
		LM-10(40)	1 EA.
		LM-9(39)	1 EA.
		LM-8(38)	1 EA.
		LM-7(37)	1 EA.
		LM-6(36)	1 EA.
		LM-5(35)	1 EA.
LM	LDW280-54575	LM-4(34)	1 EA.
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18349-13-1, -14-1, -27, -28, -29 -30		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LM	LDW280-54575	TM-5/R(65)	1 EA
		LTA-3(13)	1 EA
		D.V.T. (70)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54575	LM-4(34)	1 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18349-23 & -24, -15, -16 ✓		GAEC SCH NO. 51-2	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00				
REV	A	A	A	A				
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-30	PRIM NO. 207	JK(60) ME-1A 5/26/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
B ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 (CCA 586)

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J. GARRAFFO 9-20-67
LAYOUT BY	F. MADDEN
CHECKED BY	9-19-67
GR LEADER	9/20/67
VEH DES INT	J. Pusateri 9/20
STRUCTURES	9/22/67
STRUCTURES	9/2
WEIGHTS	
RELIABILITY	
PROJ ENGR	9/23/67
REL GROUP	9-27-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-SCIENTIFIC EQUIPMENT
SUPPORT-INBD BOOM

SIZE B	CODE IDENT NO. 26512	LDW280-18349	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

CDR 9/20

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18349-14	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.050 x 2 x 8	T6	88	
		-13		ANGLE				.050 x 2 x 8			
		-12		WEB				.032 x 4 x 8			
		-11		WEB				.032 x 4 x 8			
		28		ANGLE				.040 X 4 x 5			
		-30		WEB				.032 X 4 x 8			
		-29		WEB				.032 x 4 x 8			
		-27		ANGLE				.040 x 4 x 5			
		-24		ANGLE				.040 X 2 X 4			
		-23		ANGLE				.040 X 2 X 4			
		-22		ANGLE				.040 X 4 X 5			
		-21		ANGLE				.040 X 4 X 5			
		-16		ANGLE				.040 X 2 X 4			
		-15		ANGLE				.040 X 2 X 4			
		-14-1		ANGLE				.050 X 2 X 8			
		LDW280-18349-13-1	E	ANGLE	AL ALLOY SH	QQ-250/12	7075	.050 x 2 X 8	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18349	A Ⓐ
SCALE NONE			SHEET 2.00

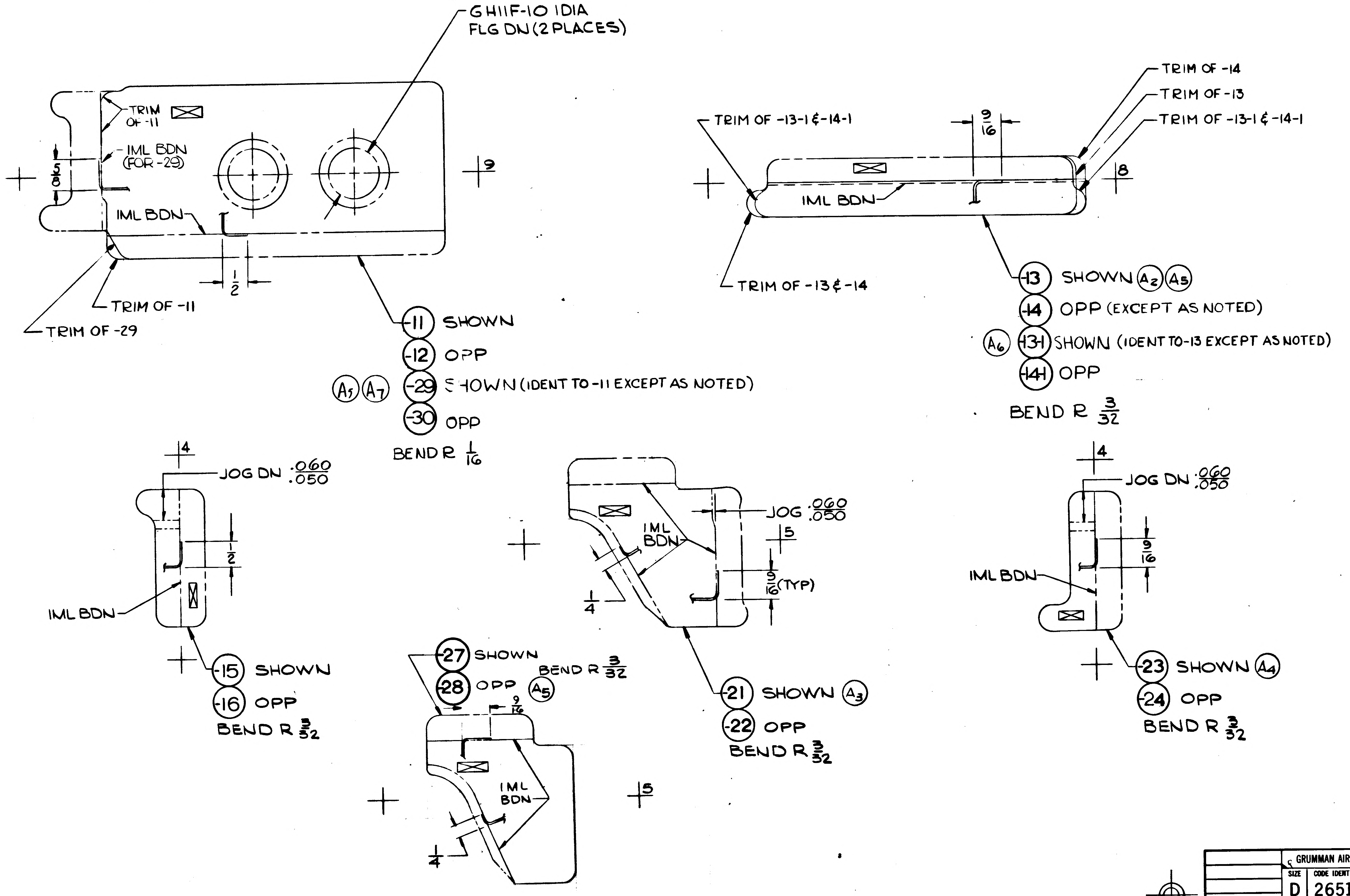
ENG 77.2 7-65

01

NAS 9-1100

4 LDW280-18349 A

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



GHIIF-10 IDIA FLG DN (2 PLACES)
TRIM OF -11
IML BDN (FOR -29)
.38
.5
IML BDN
9
1/2
TRIM OF -11
TRIM OF -29
-11 SHOWN
-12 OPP
A1 A7 -29 SHOWN (IDENT TO -11 EXCEPT AS NOTED)
-30 OPP
BEND R 1/16
TRIM OF -14
TRIM OF -13
TRIM OF -13-1 & -14-1
TRIM OF -13-1 & -14-1
9/16
8
IML BDN
TRIM OF -13 & -14
-13 SHOWN A2 A5
-14 OPP (EXCEPT AS NOTED)
A6 -13-1 SHOWN (IDENT TO -13 EXCEPT AS NOTED)
-14-1 OPP
BEND R 3/32
4
JOG DN .060/.050
1/2
IML BDN
-15 SHOWN
-16 OPP
BEND R 3/32
IML BDN
JOG .060/.050
5
9/16 (TYP)
4
-21 SHOWN A3
-22 OPP
BEND R 3/32
4
JOG DN .060/.050
9/16
IML BDN
-23 SHOWN A4
-24 OPP
BEND R 3/32
-27 SHOWN
-28 OPP A5
BEND R 3/32
9/16
IML BDN
4
5

25
20

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ ~~(BE BOTH SIDES IF NECESSARY)~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-18349 A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE D	CODE IDENT NO. 26512	LDW280-18349	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2

01

NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280	EO NO. 783
CONTROL INFO NO. LDW280A9815	

ADD LTA-3(13) EFFECTIVITY TO DASH NO.* OF THE FOLLOWING DWGS.:
QUANTITY SAME AS LM-4(34) THRU LM-15(45)

DWG. NO.	N/A	TITLE	CHG. NO.	DASH NO.*
LDW280-54510	LDW280-54509	SEE DWG.	E 1	-1
M17741	-54576		A2	-11,-13
M17743	-54576		A2	-13
M17744	-54576		A2	-13
M17745	-54576		A2	-11,-12,-13
M17770	-54576		A1	-11
-17883	-23578		B5	-15,-17
-17295	-54576		B4	-13-14-19,-20-21, -22,-23,-24,-25,-26
-18342	-54576		A1	-11,-13,-15,-17
-17623	-54566		B6	-17,-19
-18343	-54576		A1	-11,-13,-15,-17,-19
-18344	-54576		A1	-11,-13,-15,-17,-19
M17746	-54576		A1	-11
M17747	-54576		A2	-11
M17628	-54576		B2	-1
-18348	-54577		A1	-11,-13-14-15,17,-18-19
-18349	-54575		A1	-11,-12,-13,-14-15,-16,-17,-18
-18350	-23634		A1	-11,-12
M17748	-54575		A2	-13
-18369	-54586		A1	-11,-13,-15,-16,-17,-19
-18346	-54575		A1	-11,-13,-15
-18356	-54575		A2	-13-19,-21,-25,-26,-27
LDW280M17769	LDW280-54575	SEE DWG.	A1	-11

(R) (5)
280-11

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 ok. CCA-586

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3(13) EFFECTIVITY TO DASH NO.*

GAEC C EO RELEASE: JK 11/1/67

MODEL	EFFECTIVITY: ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	10/23/67			10/26/67	10/23/67		10/26/67	11-1-67
D	V.D.I.							

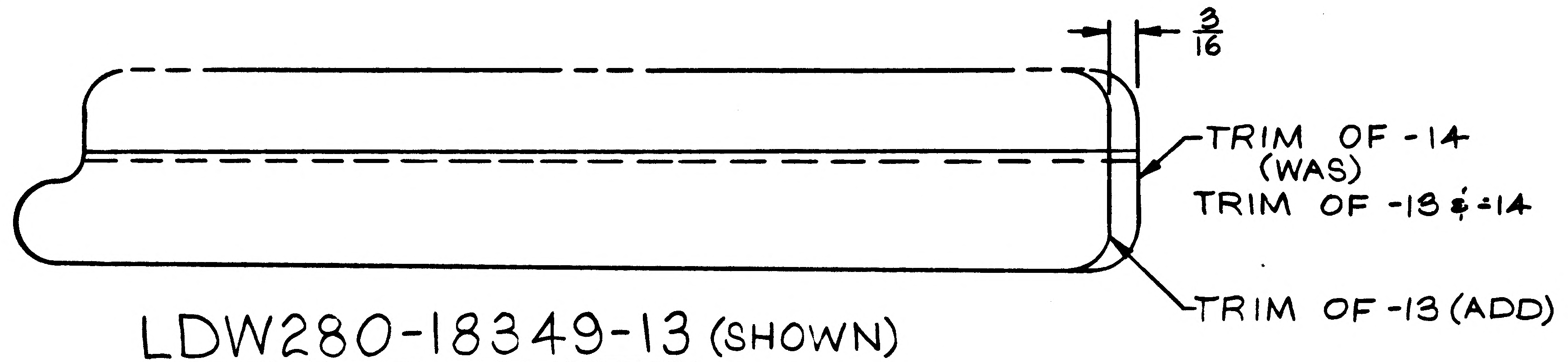
PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LE0280	783

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18349	EO NO.	A2
CONTROL INFO NO.	LM-2-4537		



LDW280-18349-13 (SHOWN)
-14 (OPPOSITE)

FOR REWORK OF EXISTING PARTS, REFINISH TRIMMED AREA #76 (ALODINE)

TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 1433 CCA 586 (2)

REASON FOR EO: ORIGINAL LENGTH INTERFERES WITH LDW280-17714 SPLICE AT NEXT ASSEMBLY

DESCRIPTION OF EO: ② FOR -13, IN FLD/DWG, ADDED CALLOUT "TRIM OF -13" REVISED -13 TRIM.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D (13) LM-4 (34) THRU LM-15 (45) DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	3/4/68			—	2/26/68	2/26/68	3/4/68	2-28-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

02025

PRIORITY: C
DRAWING TITLE: WEB~DESCENT STAGE~SCIENTIFIC EQUIPMENT SUPPORT~INBD BOOM
DRAWING NO.: LDW280-18349
EO NO.: A2

ISSUED BY LIAISON J. MALONEY 2/21/68 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

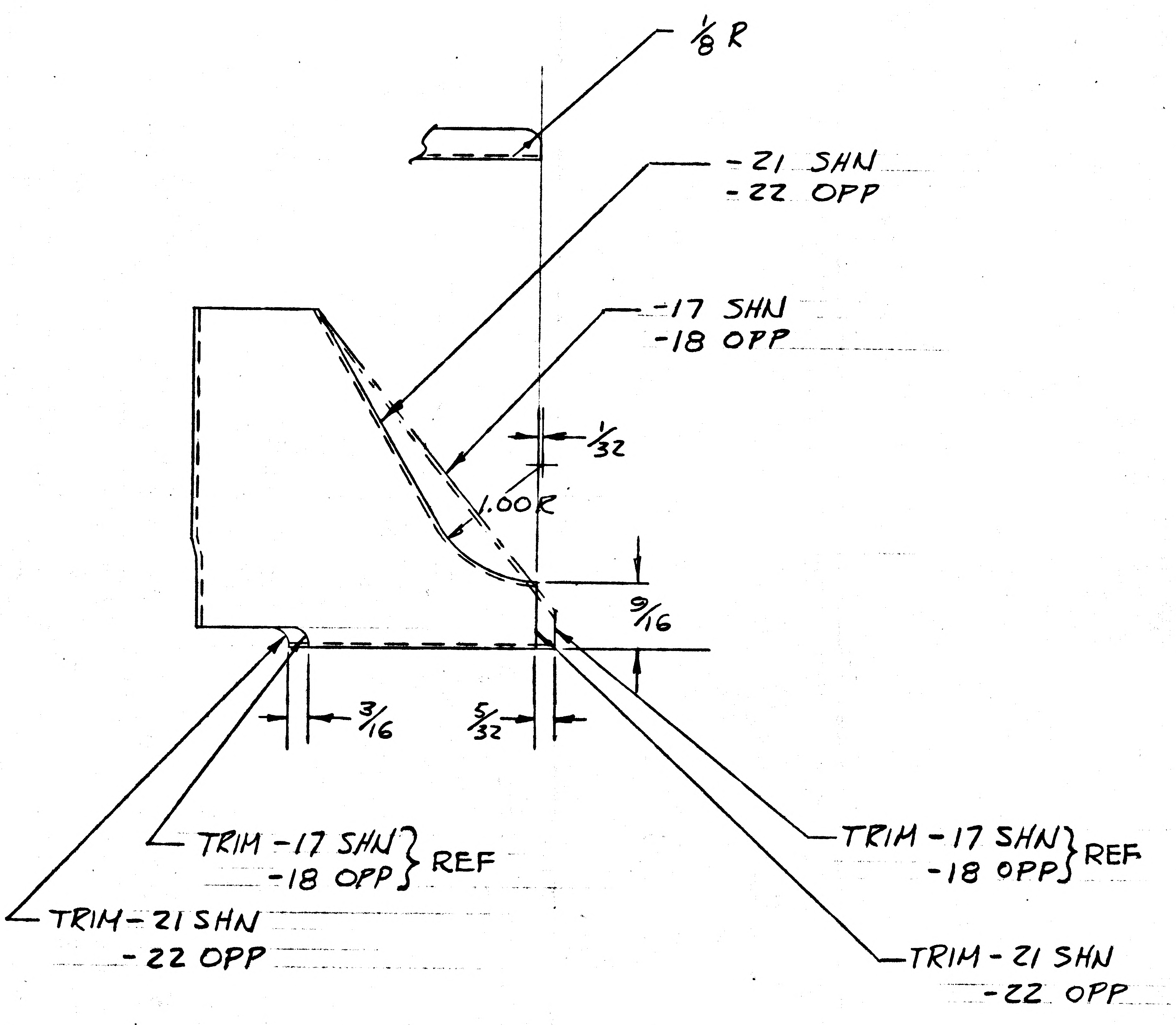
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18349 | EO NO. A3
CONTROL INFO NO. LDW280B 2441

CREATE -21 & -22 IDENTICAL TO -17 & -18 EXCEPT AS SHOWN & NOTED.

N/A LDW280-54575 EFF LTA-3(13) LM-4 (34) THRU LM-15 (45) & DVT (70). 1 EA REQD/VEHICLE.

-21 & -22 REPLACES -17 & -18 RESPECTIVELY.


1/8 R
-21 SHN
-22 OPP
-17 SHN
-18 OPP
1/32
1.00R
9/16
3/16
5/32
TRIM -17 SHN
-18 OPP } REF
TRIM-21 SHN
-22 OPP
TRIM -17 SHN
-18 OPP } REF
TRIM - 21 SHN
-22 OPP

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1433 CCA586 (5)

REASON FOR EO: PROVIDE CLEARANCE FOR WATER TANK SUPPORT STRUT.

DESCRIPTION OF EO: CREATE -21 & -22 TO REPLACE -17 & -18 RESPECTIVELY

GAEC EO RELEASE: C JK 2/29/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34) THRU LM-15 (45) LTA-3 (13) DVT (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS			APPROVED BY								
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE									
✓			-17 -18	B	JAP 2/28/68 VDI	SUPPORT	RELIAB. GROUP	PST 2/28/68 GROUP LEADER	NHA 2/28/68 STRESS GROUP	LIAISON ENGRG	JAP 2/28/68 PROJ ENGRG	2-28-68

PRIORITY: C

DRAWING TITLE: WEB - D/S - SCIENTIFIC EQUIPT. SPT. - INBD BOOM

DRAWING NO.: LDW280-18349 EO NO.: A3

ISSUED BY MAJUK x 3352 SECTION VDI GROUP NO. 335 PL 25

CDR 022868

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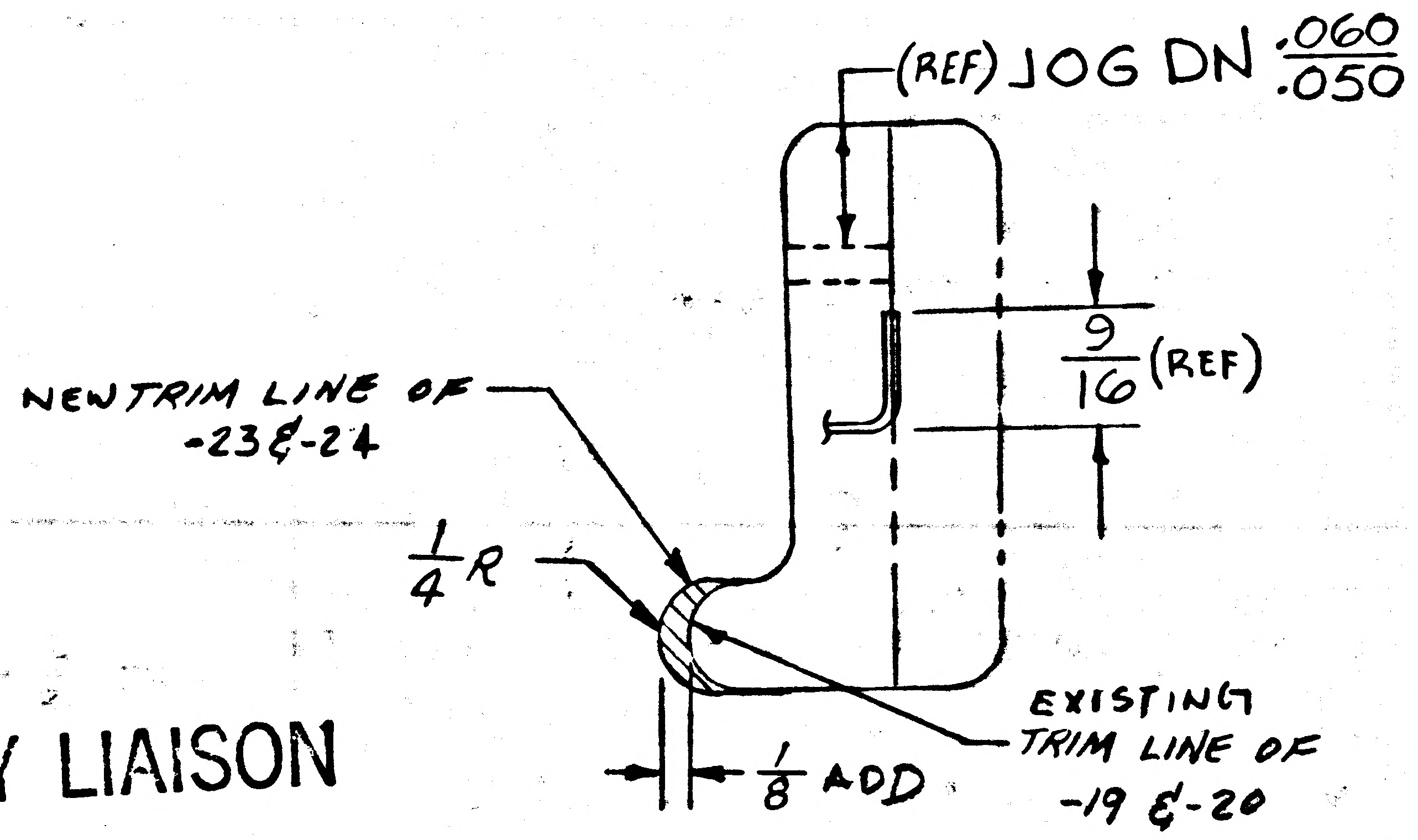
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18349
EO NO. A4
CONTROL INFO NO. LM-5-19272

CREATE -23 & -24 IDENTICAL
TO -19 & -20 EXCEPT AS SHOWN:



RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☒ LCD 1433 CCA 586 (5)

REASON FOR EO
TRIMMING REQ'D FOR FIT; ADDITIONAL MAT'L REQ'D FOR E.D.

DESCRIPTION OF EO
CREATED -23 & -24
REMOVED -19 & -20.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LTA-3(13), LM-4(34)	
		THRU LM-15(45)	
		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP -19 -20

APPROVED BY								
DATE	3/4/68				3/2/68	3-2-68	3/9/68	3/4/68
	YDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: WEB - D/S - SCIENTIFIC EQUIP. SUPPORT - INBD BOOM
DRAWING NO.: LDW280-18349
EO NO.: A4

ISSUED BY R LIAISON - J. Mc GILL - FP X-86755 SECTION YDI GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

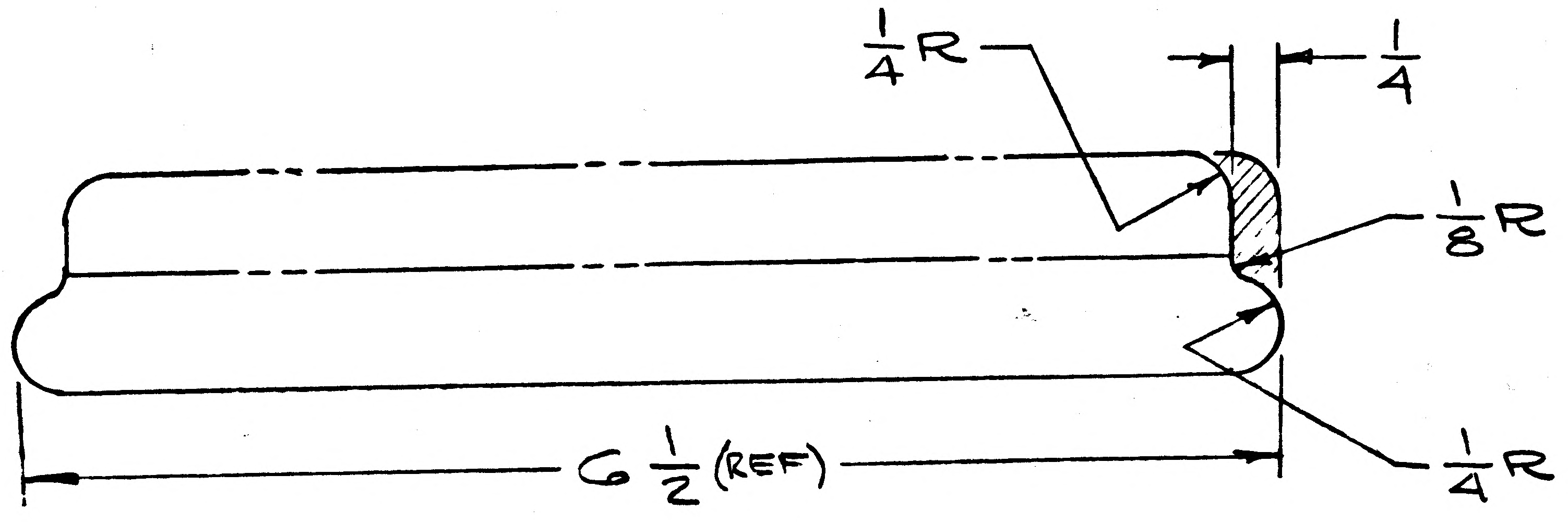
ENG 32.1 REV 3-65 8204

ENGINEERING ORDER

DWG. NO. LDW280-18349		EO NO. A6	
CONTROL INFO NO.	LM-5-19630		

THIS IS A REVISION OF EO A5

TRIM -13-1 & -14-1 TO DIM'S SHOWN



RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433 CCA 586	(5)

REASON FOR EO
TO ACCOMODATE ATTACHING PARTS.
(STRUCTURAL INTERF AT ASSY)

DESCRIPTION OF EO
(REF EOA5)
TRIMMED -13-1 & -14-1

GAEC EO RELEASE: ✓

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LM-4 (34)	DVT (70)
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				Z				
DATE	4/20				4-3-68	4-3-68	4/20	4/3/68
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB INSTL D/S~SEB~INBD BOOM	LDW280-18349	A6

ISSUED BY LIAISON G. McGill X86755 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

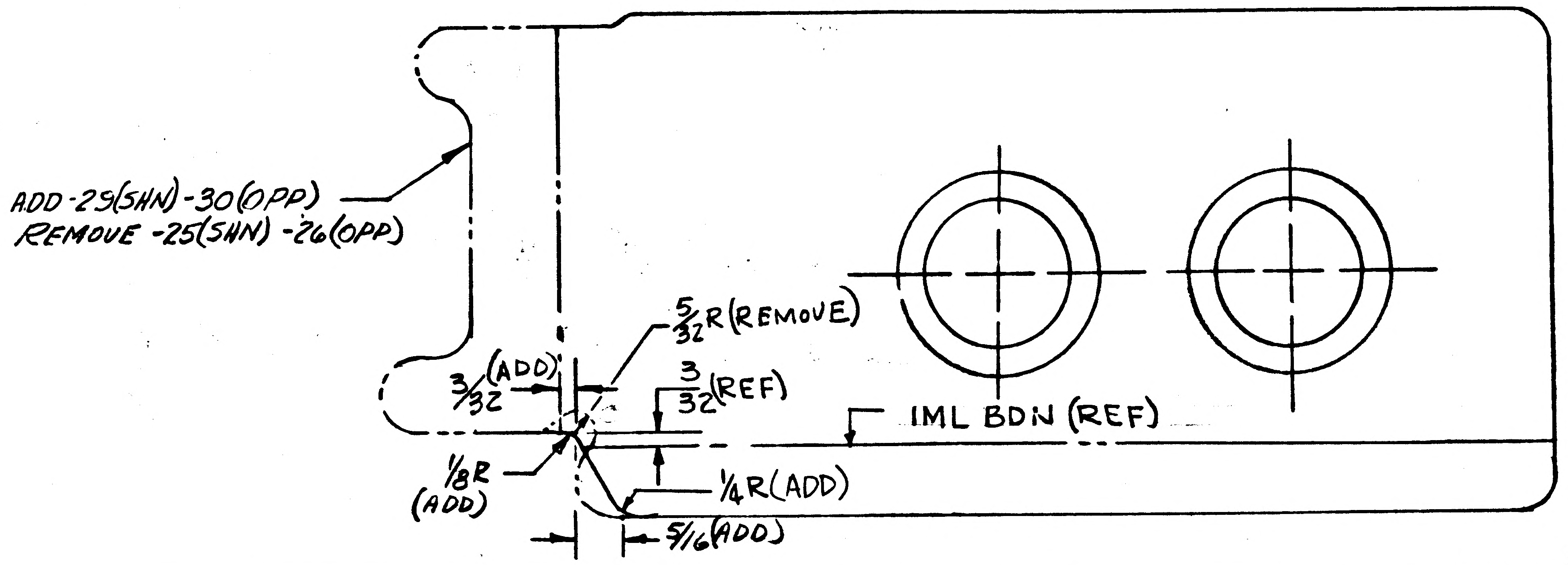
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280 18349 | EO NO. A7
CONTROL INFO NO. LDW 280 B 3000

ADD -29 & -30 IDENT. TO -25 & -26 RESPECTIVELY EXCEPT AS SHOWN BELOW
FOR -29 & -30 EFF TO BE LM-4(34) THRU LM-15(45), DVT (70) N/A LDW280-54575 (1 EA) REQ/MOD
REMOVE -25 & -26 REQMTS FOR LM-4(34) THRU LM-15(45), DVT (70)



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA 586

REASON FOR EO: TO ACCOMMODATE ATTACHING PARTS & IMPROVE FASTENER EDGE DISTANCE

DESCRIPTION OF EO: ADDED -29 & -30 REMOVED -25 & -26

GAEC EO RELEASE: C — JK 4/29/8 (5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45) DVT(70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			-25 -26	DATE	4/26/68			4-25-68	4-26-68	4-26-68	4/26/68	4-27-68
REVISE DWG	RECORD EO	REWORK	SCRAP	G	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: WED DIS SCIENTIFIC EQUIPMENT SUPPORT INBD BOOM
DRAWING NO.: LDW280-18349
EO NO.: A7

04-19-68
ISSUED BY R CLARK / P THORJUSEN X3352 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

0 1 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 969
CONTROL INFO NO. LDW280B3375

ENG 32.2 REV 3-65

FOR THE FOLLOWING PARTS ADD TM 5/R(65) REQUIREMENTS, N/A LDW280-54575 FOR THE QUANTITIES NOTED

DWG NO *	TITLE	QUANT REQD	CHANGE NO.
LDW280-17712-13	SEE DWG	1	A7
-14		1	
-21		1	
-17712-22		1	
-17714-11		2	C6
-13		2	
-19		4	
-21		8	
-23		2	
-25		2	
-27		2	
-17714-29		2	
-17442-11		1	B4
-17442-13		1	
-18346-11		1	A2
-18346-13		3	
-18346-15		1	
-18356-13		1	A8
-19		1	
-31-1		1	
-23		2	
-33		1	
-34		1	
-35		1	
-36		1	
-18356-37		4	
-17294-23		1	B6
-17294-27		1	
-18370-17		1	A3
-19		1	
-21		1	
LDW280-18370-22	SEE DWG	1	

DWG NO. *	TITLE	QUANT REQD	CHANGE NO.
	SEE DWG		
LDW280-18322-11		1	A3
-12		1	
-13		1	
-18372-14		1	
-18487-11		1	A1
-18379-15-1		1	A5
M17266-3		1	C6
M17266-4		1	
M17629-1		1	B5
M17640-1		1	B8
M17640-2		1	
M17748-13		1	A4
M17766-11		1	A3
M17769-11		1	A2
M17952-11		1	A1
M17806-11		1	A2
-18349-13-1		1	A8
-14-1		1	
-15		1	
-16		1	
-23		1	
-24		1	
-27		1	
-28		1	
-29		1	
LDW280-18349-30	SEE DWG	1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2U (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON-(*) ADDED TM-5/R(65) REQMTS

GAEC EO RELEASE: K 5/20/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	[illegible]			[illegible]	W/H		[illegible]	[illegible]
DATE	5-13-68			5-13-68	5-13-68		5/13/68	[illegible]

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 969

5-17-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1360
CONTROL INFO NO. LDW280B7428

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18344 ✓	A4	SEE DWG.
-18346 ✓	A4	
-18348 ✓	A3	
-18349 ✓	A9	
-18350	A5	
-18351	A3	
-18352	B1	
-18353	B1	
-18355	B1	
LDW280 -18356	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG54 PG4 CCA1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/18/69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT
APPROVED BY				PSF	WJH			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/8/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1360

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 333 25

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NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280 | EO NO. 1527
CONTROL INFO NO. LDW 280B 8110

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW 280-18340 ✓	SEE DWG	A6
42 ✓		A5
43 ✓		A4
44 ✓		A5
46 ✓		A5
48 ✓		A4
49 ✓		B1
50		A6
51		A4
LDW 280-18352	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 30 & 31 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	PJT				M			Bauman
DATE	7-29-69			7/29/69	8/1/69		8/1/69	8-9-69

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO. LEO 280 | EO NO. 1527

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1647
CONTROL INFO NO. LDW280B - 8453

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
✓	LDW280 - 17712	SEE DRAWING	LDW280-54575	B3
✓	17714		-54575	D4
✓	17442		-54575	B7
✓	18346		-54575	A6
✓	18356		-54575	B3
✓	17294		-54575	C3
✓	18370		-54575	A6
✓	18372		-54575	A6
✓	18349		-54575	B2
	18379		-54575	A8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 9

(5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: SB 8-7-69; JK 8/28/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY					W/H		
DATE	8-8-69			8/4/69	8/4/69		8/14/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1647

8-27-69
ISSUED BY F. Olivieri EXT 86098 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-18350

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23634	DVT (70)	1 EA
LM	LDW280-23634	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-23634	LM 4(34)	1 EA
PART NO. LDW280-18350-11-12		GAEC SCH NO. 51-2	

WORK PKG FUNCTION NO.111 3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN RELINFO		
		PRIM NO.	JK(001)	
LAST DASH NO. USED	-12	207	MP-16-9/14	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A BISHOP 8-30-67	RELIABILITY	
LAYOUT BY	F.MADDEN		
CHECKED BY	9·1·67		
GR LEADER	9/11/67		
VEH DES INT	J. Cusatere 9/12/67		
STRUCTURES	9/13/67	PROJ ENGR	D.G. McClaughlin 9/13/67
STRUCTURES		REL GROUP	Botts 9-13-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPACE, L. I., NEW YORK

WEB
DESCENT STAGE~SCIENTIFIC EQUIPMENT
BAY~END CLOSURE~INBD

SIZE B
CODE IDENT NO. 26512
LDW280-18350
SCALE NONE
SHEET 1.00 OF 3

CDR = 9/20/67

ENG 77.1 12-65

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NAS 9-1100

								LDW280-18350-12	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.032X6X23	NONE	88	
								LDW280-18350-11	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.032X6X23	NONE	88	
QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18350

SCALE NONE

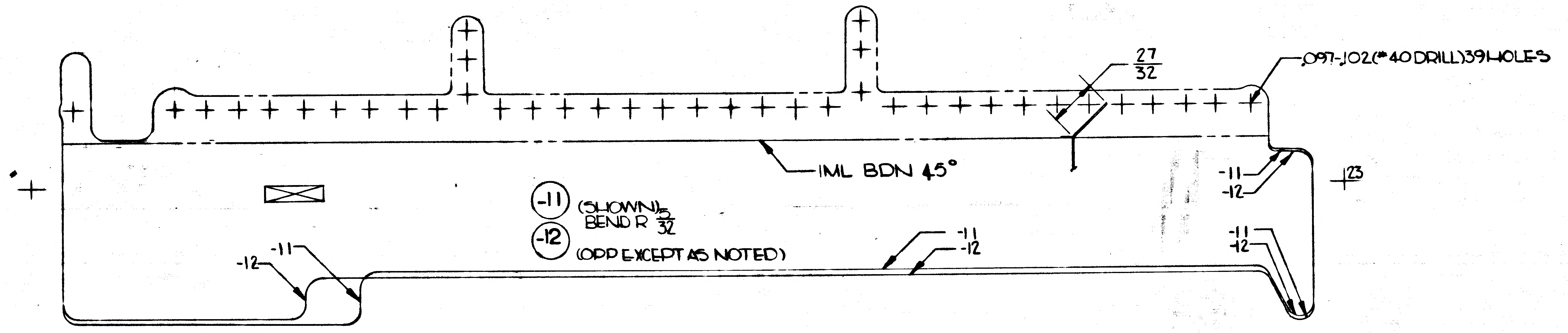
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTE
1 NO TOOLING HOLES PERMITTED IN PARTS.



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
R EEFFITAMF PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.030	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18350
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

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NAS 9-1100

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LE0280 EO NO. 783
CONTROL INFO NO. LDW280A9815

ADD LTA-3(13) EFFECTIVITY TO DASH NO.* OF THE FOLLOWING DWGS.:
QUANTITY SAME AS LM-4(34) THRU LM-15(45)

DWG. NO.	N/A	TITLE	CHG. NO.	DASH NO.*
LDW280-54510	LDW280-54509	SEE DWG.	E1	-1
M17741	-54576		A2	-11, -13
M17743	-54576		A2	-13
M17744	-54576		A2	-13
M17745	-54576		A2	-11, -12, -13
M17770	-54576		A1	-11
-17883	-23578		B5	-15, -17
-17295	-54576		B4	-13-14-19, -20-21, -22, -23, -24, -25, -26
-18342	-54576		A1	-11, -13, -15, -17
-17623	-54566		B6	-17, -19
-18343	-54576		A1	-11, -13, -15, -17, -19
-18344	-54576		A1	-11, -13, -15, -17, -19
M17746	-54576		A1	-11
M17747	-54576		A2	-11
M17628	-54576		B2	-1
-18348	-54577		A1	-11, -13, -14, -15, -17, -18, -19
-18349	-54575		A1	-11, -12, -13, -14, -15, -16, -17, -18
-18350	-23634		A1	-11, -12
M17748	-54575		A2	-13
-18369	-54586		A1	-11, -13, -15, -16, -17, -19
-18346	-54575		A1	-11, -13, -15
-18356	-54575		A2	-13-19-21-25-26-27
LDW280M17769	LDW280-54575	SEE DWG.	A1	-11

(5)

280-11

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 OK. CCA-586	

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3(13) EFFECTIVITY TO DASH NO.*

GAEC C EO RELEASE: JK 11/1/67

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13),		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	[illegible]			[illegible]	[illegible]		[illegible]	[illegible]
DATE	10/23/67			10/21/67	10/23/67		10/21/67	11-1-67
D	V.D.I.							

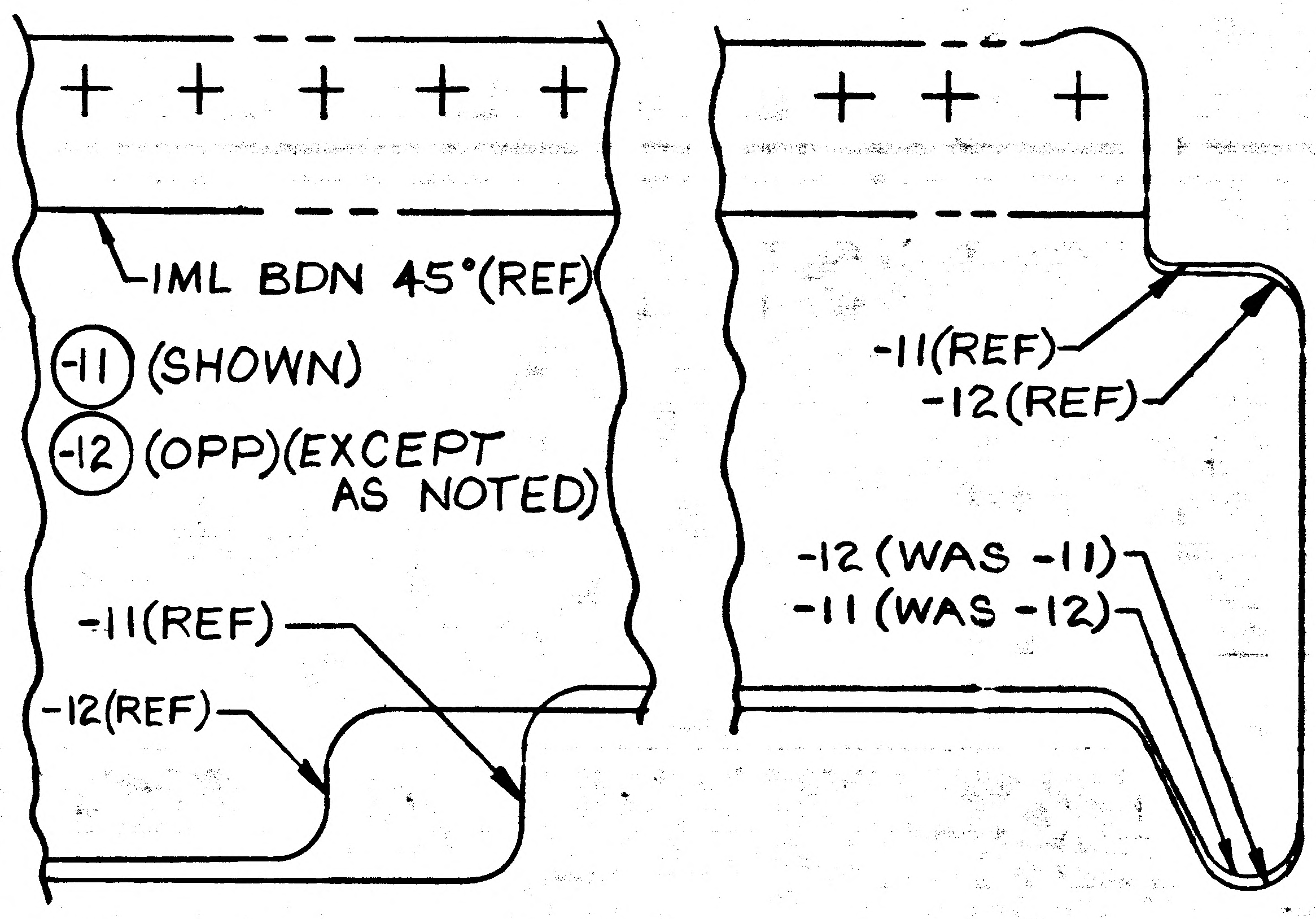
PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 783

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

ENG 32.1 REV 9-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18350 | EO NO. A2
CONTROL INFO LM-2-4162



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO
(DRAWING CORRECTION ONLY) INCONSISTENT TRIM NOTATIONS

DESCRIPTION OF EO
FOR -11 & -12, IN FLD/DWG REVISED TRIM CALLOUTS, -11 (WAS -12) & -12 (WAS -11).

GAEC EO RELEASE: JN

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

EFFECTIVITY

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD

APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	12/2/67			—	11/10/67	11/10/67	12/2/67	11-11-67
	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY: E
DRAWING TITLE: WEB~DESCENT STAGE~SCIENTIFIC EQUIPMENT BAY~END CLOSURE
DRAWING NO. LDW280-18350
EO NO. A2

ISSUED BY LIAISON J. MALONEY 11/10/67 X3604 SECTION V.D.I. GROUP NO. 335 PL. 25

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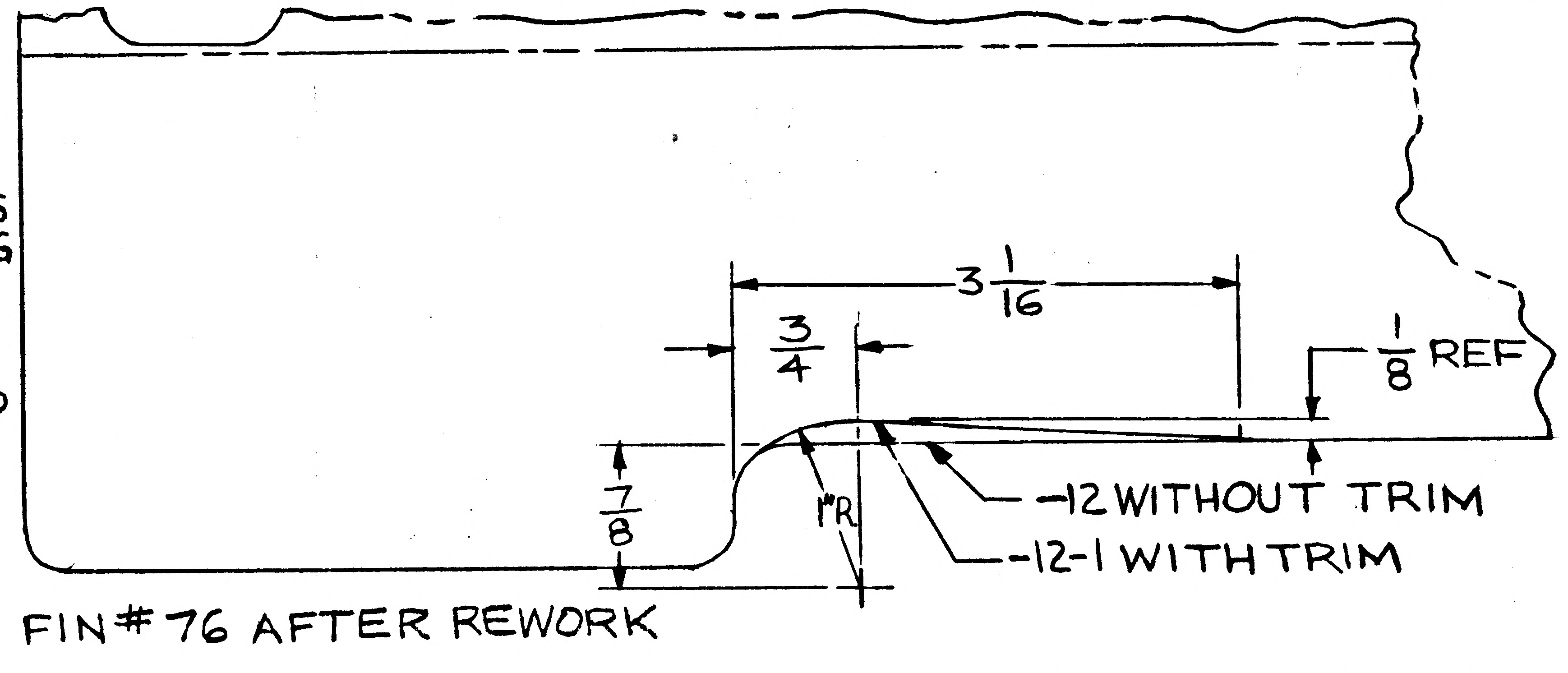
NAS 9-1100

LSO 283
10-31-67

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 18350		EO NO. A3
CONTROL INFO NO. LM-2-4392		



DIMENSIONS ARE FOR MFG PURPOSES ONLY, DO NOT ADD TO LOFTED DWG

FIN # 76 AFTER REWORK

CREATE -12-1 IDENTICAL TO -12 EXCEPT AS NOTED
-12-1 EFFECTIVITY LTA-3D(13) 1EA
-12 EFFECTIVITY LM-4(34) THRU LM-15(45)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: PART INTERFERENCE AT INSTL

DESCRIPTION OF EO: ON M/B, B/M, F/D
CREATED -12-1 EFFECTIVITY LTA-3D(13);
RESTRICTED -12 TO LM-4(34) THRU LM-15(45)

GAEC EO RELEASE: (2) C; JK; (13); 02 07-8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY				—				
DATE	1/22/68			—	1/16/68	1/16/68	1/22/68	1-18-68
1/16/68	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB-D/S-SCIENTIFIC EQUIP BAY-END CLOSURE INBD	LDW280-18350	A3

ISSUED BY LIAISON T. WALSH X3604 SECTION VD1 GROUP NO. 335 PL 25

0 1 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 952
CONTROL INFO NO. LDW280B3370

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMT'S
N/A LDW280-23634 FOR QUANTITIES NOTED:

DRAWING NO.*	TITLE	REQ'D/MOD	CHANGE NO.
LDW280-17719-17		1	B5 ✓
-17719-18		1	
-18350-11		1	A4 ✓
-18350-12		1	
-17341-11		1	D5
LDW280-17341-23	SEE DWG	1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3075 CCA 586 PKG 2R (5)

REASON FOR EO: ADD TM-5(65) REQMTS.

DESCRIPTION OF EO: ON - * ADDED TM-5/R(65) REQMTS

GAEC EO RELEASE: 5/18/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY								
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5/16/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 952

5-17-68
ISSUED BY T.COTTER x3352/P THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING OR

DWG. NO. LEO 280 | EO NO. 1360
CONTROL INFO NO. LDW280B7428

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18344 ✓	A4	SEE DWG.
-18346 ✓	A4	
-18348 ✓	A3	
-18349 ✓	A9	
-18350 ✓	A5	
-18351	A3	
-18352	B1	
-18353	B1	
-18355	B1	
LDW280 -18356	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD3587 PKG54 PG4 CCA1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/18/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/8/69

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO.: 1360

052869 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 - 25

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NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1527
CONTROL INFO NO. LDW 280B 8110

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (~~[redacted]~~ 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
LDW280-18340 ✓	SEE DWG	A6	
42 ✓		A5	
43 ✓		A4	
44 ✓		A5	
46 ✓		A5	
48 ✓		A4	
49 ✓		B1	
50 ✓		A6	
51		A4	
LDW280-18352	SEE DWG	B2	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 30 & 31 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE: S-6-69; 8/9/9; Bauman 8-9-69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY								
DATE	7-29-69			7/29/69	8/1/69		8/1/69	8-9-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1527

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18351

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54625	DVT (70)	2
LM	LDW280-54625	LM-15 (45)	2
		LM-14(44)	2
		LM-13 (43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
LM	LDW 280-54625	LM-4(34)	2
PART NO. LDW280-18351-1		GAEC SCH NO. 51-2	

WORK PACKAGE FUNCTION #110 (3)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH								
SHEET	1.00		2.00	3.00				
REV								
SHEET								
REV								
SHEET								
REV								
LAST SECT LTR USED		GRUMMAN REL INFO						
LAST DASH NO. USED	-13	PRIM NO. 207	JK 601					

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°
S ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 CCA586

CONTRACT NO. NAS 9-1100		LINE ITEM	DOCUMENTATION TYPE II
DRAWN BY	W. CONROY 9-19-67	RELIABILITY	
LAYOUT	F. MARZELLA 9-20-67		
CHECKED BY	9·19·67		
GRP LEAD	J Stratton 9/23/67		
VEH DES INT	J Stratton 9/23/67		
STRUCTURES	9/23/67	PROJ ENGR	9/23/67
STRUCTURES	9/25/67	REL GROUP	9-27-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL ASSY (MATCHED SET)
DESCENT STAGE ALSEP MECHANISM
SPINDLE SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18351 –
SCALE NONE
SHEET 1.00 OF 3

CDR 10-9-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY				-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
							NAS1097AD3	E	RIVET	STD PART						
				4			NAS697A3		PLATE NUT	STD PART						
					1		LDW280-18351-13		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.062 x 2 x 3	T6	88	
				1			LDW280-18351-11		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.062 x 3 x 4	T6	88	
					1		LDW280-18351-3		CHANNEL ASSY					NONE	NONE	
							LDW280-18351-1	E	CHANNEL ASSY	(MATCHED SET)				NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						38	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	DRAWING NO.
B	26512	LDW280-18351

SCALE NONE

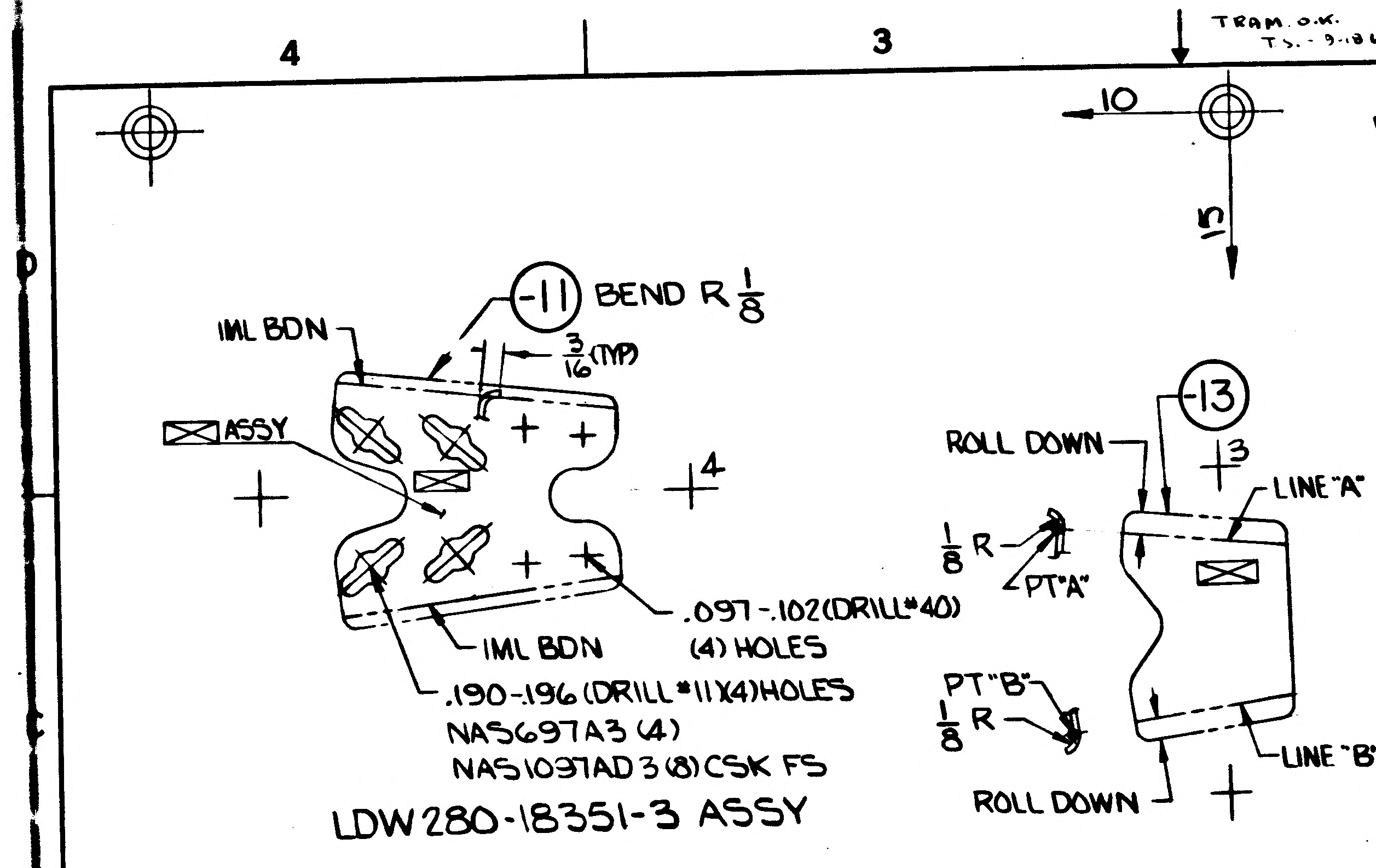
SHEET 2.00

ENG 77.2 7-65

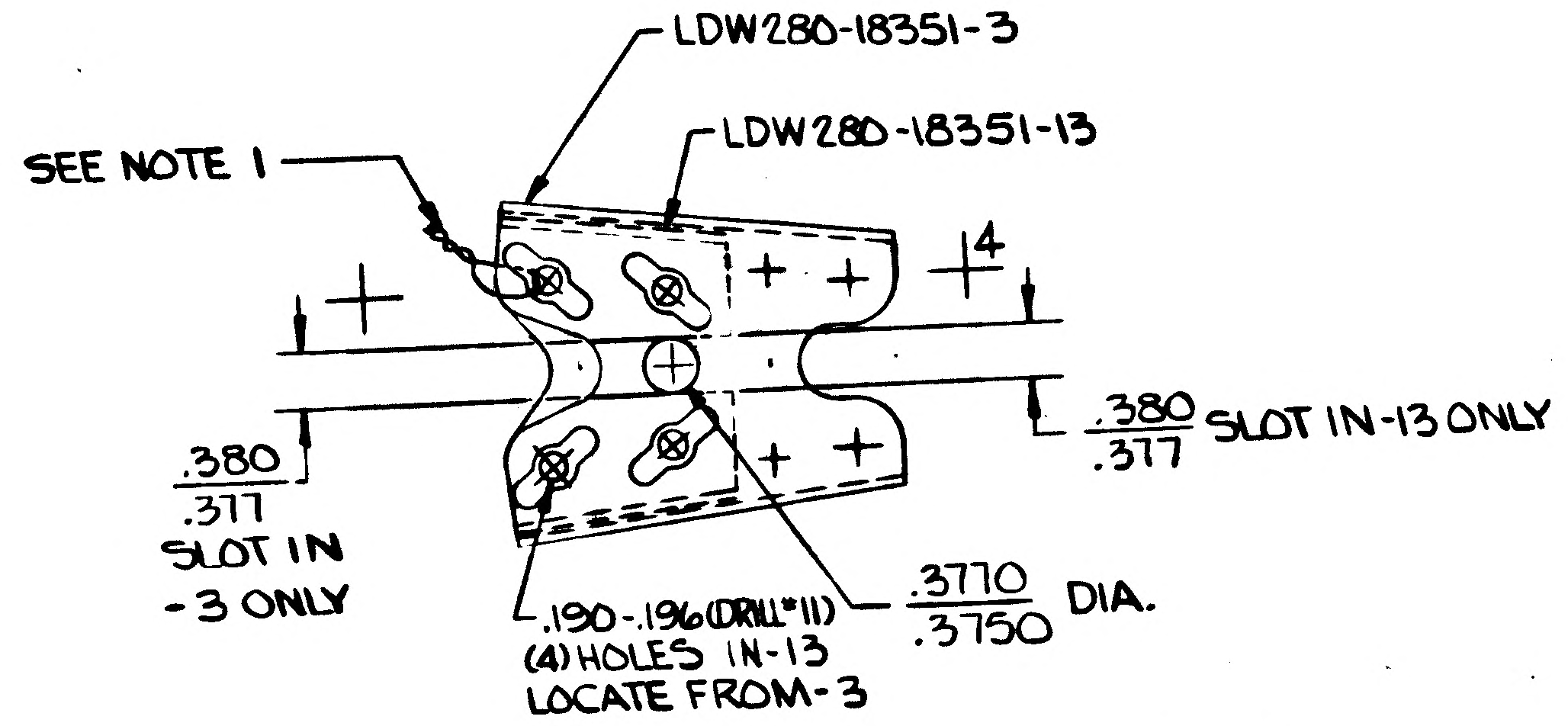
01

NAS 9-1100

TRAM O.K.


-10
15
-11
BEND R 1/8
IML BDN
3/16 (TYP)
☒ ASSY
4
.097-.102 (DRILL #40)
(4) HOLES
IML BDN
.190-.196 (DRILL #11 X 4) HOLES
NAS697A3 (4)
NAS1097AD3 (8) CSK FS
-13
ROLL DOWN
3
LINE "A"
1/8 R
PT "A"
PT "B"
1/8 R
LINE "B"
ROLL DOWN

LDW280-18351-3 ASSY


LDW280-18351-3
LDW280-18351-13
SEE NOTE 1
4
.380/.377 SLOT IN -13 ONLY
.380/.377 SLOT IN -3 ONLY
.190-.196 (DRILL #11) (4) HOLES IN -13 LOCATE FROM -3
.3770/.3750 DIA.

LDW280-18351-1 MATCHED SET

NOTES

1. PARTS SHALL BE CLAMPED, DRILLED AND WIRED TOGETHER AS MATCHED SET.
2. BREAK ALL HOLE EDGES 1/64 EXCEPT MOUNTING HOLES.
3. NO TOOLING HOLES PERMITTED IN PARTS
4. INSTALL FASTENERS PER LSP 14-15302

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED ~~HOLES~~ PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18351
SCALE FULL			SHEET 3.00

LDW280-18351

FOR PHOTO 1 REPRODUCTIO

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 782
CONTROL INFO NO. LDW280A9816

ADD LTA-3(13) EFFECTIVITY TO DASH NO. * OF THE FOLLOWING DWGS:
QUANTITY SAME AS LM-4(34) THRU LM-15(45)

DWG. NO.	DASH NO. *	N/A	TITLE	CHG. NO.
LDW280-18372	-11,-12,-13,-14,-15,-17,-19	LDW280-54575	SEE DWG.	A1
-18373	-11,-13,-15,-17,-19,-21	-54575		A1
-18386	-11,-13,-15,-16,-17,-19	-54576		A1
-18387	-11,-13,-15,-17,-19,-21	-54576		A1
M17775	-11	-54625		A1
M17778	-11,-13,-15,-17,-19,-21	-54625		A1
M17762	-1	-54625		A1
M17784	-11,-12	-54576		A1
-18388	-11,-13,-14,-15,-16	-54576		A1
-18389	-11,-13,-15,-16	-54576		A1
-18390	-11,-13,-15,-17,-19	-54576		A1
-18351	-1	-54625		A1
LDW280-54593	-1	LDW280-54509	SEE DWG	A1
LDW 280-18411	-13,-15	LDW280-54625	SEE DWG	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD1433 ok. CCA586 (5)

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3(13) EFFECTIVITY TO DASH NO. *

GAEC EO RELEASE: C JK 11/1

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

	D	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JaP				JAS	WJK		WLH	
DATE	10/23/67				10/26/67	10/23/67		10/26/67	10-31-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 782

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

0 1

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 946
CONTROL INFO NO. LDW280B 3381

ENG 32.2 REV 3-65

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMT'S N/A LDW280-54625 FOR QUANTITIES NOTED:

DRAWING NO*	TITLE	REQ'D/MOD	CHANGE NO.
LDW280M17752-11	SEE DWG	2	A1
M17761-11		2	A1
M17761-13		2	
M17762-1		4	A2
M17763-1		2	A2
M17775-11		2	A2
M17776-11		2	A1
M17778-11		4	A4
M17778-13		4	
M17778-15		2	
M17778-17		4	
M17778-19		2	
M71503-11		2	B1
-18351-1		2	A2
-18391-15		2	A2
-18391-16		2	
-18410-11		2	A5
-18410-13		2	
-18410-19		1	
-18411-15		10	A7
-18411-23		5	
-71510-11		1	A1
-71511-11	SEE DWG	1	A2

01 NAS 9-1100

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 CCA 586 PKG QE	(5)
REASON FOR EO: ADD TM5/R(65) REQMTS.	DESCRIPTION OF EO: ON-* ADD TM-5/R(65)REQMTS			GAEC EO RELEASE: JK 5/16/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-16-68

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 946

5-17-68
ISSUED BY T. COTTER x 3352/P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1360
CONTROL INFO NO. LDW280B7428

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18344 ✓	A4	SEE DWG.
-18346 ✓	A4	
-18348 ✓	A3	
-18349 ✓	A9	
-18350 ✓	A5	
-18351 ✓	A3	
-18352	B1	
-18353	B1	
-18355	B1	
LDW280-18356	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG54 PG4 CCA1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: JC 4/18/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JJS			PBT	WJH		Jaf	
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/8/69

PRIORITY: C DRAWING TITLE: SEE DWG DRAWING NO.: LEO 280 EO NO.: 1360

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 25

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NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280		EO NO. 1527
CONTROL INFO NO. LDW 280B 8110		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW 280-18340 ✓	SEE DWG	A6
42 ✓		A5
43 ✓		A4
44 ✓		A5
46 ✓		A5
48 ✓		A4
49 ✓		B1
50 ✓		A6
51 ✓		A4
LDW 280-18352	SEE DWG	B2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 30 & 31 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-6-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP

APPROVED BY					M			Bauman
DATE	7-29-69			7/29/69	8/2/69		8/2/69	8-9-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1527

8-26-64
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO280 | EO NO. 1834
CONTROL INFO NO. LDW 2808 9884

FOR THE FOLLOWING DRAWING AND DASH NO.S* NEXT ASSEMBLY LDW280-54625
ADD LTA-3DR/1 (460) TO EFFECTIVITY. SAME QUANTITY AS LM10 (40)

DWG. NO. *	CHANGE NO.	DWG. NOMENCLATURE	N/A
✓ LDN280-18351-1	A5	SEE DWG.	LDW280-54625
LDW280-18410-11-1, -21, -13	B1		
LDW280-18411-15, -23	B4		
LDW280-18391-15, -16	A6		
LDW280-71510-11	A4		
LDW280-71511-11	A5		
LDN280M17752-11	A4		
LDW280M17761-11, -13	A4		
LDW280M17762-1	A5		
LDW280M17763-1	A5	SEE DWG.	LDW280-54625

* APPLICABLE DASH NO. S

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3890 PKG 70 (5)

REASON FOR EO: PARTS REQUIRED FOR STATIC TEST [LTA-3DR/1 (460)]

DESCRIPTION OF EO: ON * ADDED LTA-3DR/1 (460) REQ'MT.S
N/A LDW280-54625

GAEC EO RELEASE: JK 2/6/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK | SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					W/H			
DATE	2-4-70			2/2/70	2/5/70		2-5-70	2/6/70

PRIORITY: C | DRAWING TITLE: NOTED | DRAWING NO. LEO 280 | EO NO. 1834

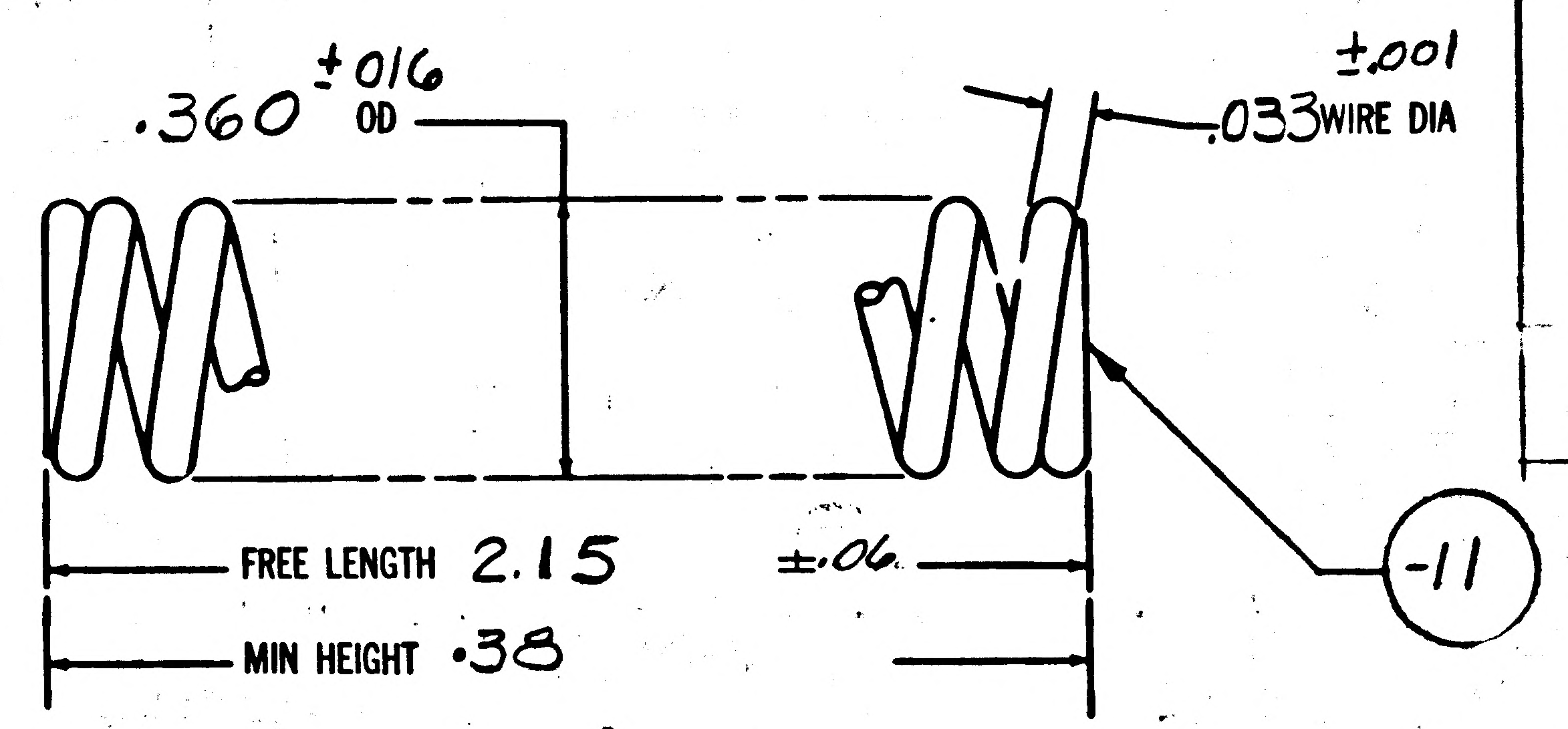
CDR 020670
ISSUED BY A. GROSS / R. CLARK SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENGINEERING INFORMATION ONLY			
DEFLECTION RATE: 5.0	LBS/INCH	MAX. LOAD IN RANGE: 7.0	LBS
DESIGN SPRING LIFE 10,000	CYCLES AT STRESS RANGE	50	%

CHG LTR	ITEM NO.	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	GRUM. INFO ONLY	DESCRIPTION OF REVISIONS	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	SCRAP	CHANGED BY AND DATE	APPD ENGRG	GOVT
A	1		✓		LEO280-753 LCD 1433 CCA-586	P	N/A LDW 280-54626 WAS LDW 280-54633	LM-4 THRU-15 DVT (70)	✓		COX 6-11-68		
	2		V		LEO280-762 LCD1433 CCA-586	B	ADDED LTA-3 (13) EFFECTIVITY & QUANTITY TO-11	LTA-3(13)	NOT	REQ'D			
	3.			✓	EOA3		ON-11, REVISE "INSPECTION TEST LOAD AT" 1.40 S/B .75	LM-4 THRU-15 DVT 70-LTA-3	NOT	REQ'D			
	4			✓	EOA4		ON-11 REVISE "INSPECTION TEST LOAD AT" 1.40 S/B .75						
	5		✓		LEO280-947 LCD 3075 CCA-586		ON-11, ADDED TM-5/R(65) REQMTS.	TM-5/R(65)	NOT	REQD	H.D.		
	6		✓		LEO280-1003 LCD 3075 CCA586		ON-11, 2 REQ'D/MOD WAS 4 FOR TM-5/R(65)	TM-5/R(65)	12/4/68	✓	COX 12-5-68	AS.	



(A3) (A4)

L M	LDW280-54626	LTA-3(13)	2
L M		TM-5/R(65)	2
L M		DVT (70)	2
L M		LM-15(45)	2
		THRU	
L M	LDW280-54626	LM-4 (34)	2
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

NO. OF ACTIVE COILS: 9.5

NO. OF TOTAL COILS: 11.5

ENDS TO BE CLOSED AND GROUND SQUARE

DIRECTION OF COILING OPTIONAL

TOLERANCE ON PROPORTIONATE LOAD ± 10% UP TO FROM SOLID HEIGHT

SPRING TO OPERATE INSIDE OF .400 DIA; OUTSIDE OF .249 DIA

STRAIN RELIEVE AFTER FORMING. MAGNAFLUX IF WIRE DIA IS GREATER THAN .063

INSPECTION TEST LOAD AT .75 INCHES TO BE 7 LBS ± 10%

FINISH:

PART NO.	I&T:	MATERIAL	GOVT SPEC	COMMERCIAL SPEC
LDW280-18352-11		SPRING STEEL WIRE	MIL-W-6101	MUSIC WIRE

PART NO. LDW280-18352-11

GAEC SCH NO.

WORK PACKAGE FUNCTION NO 111 (5)

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS — DECIMALS — ANGLES ± 1/32 ±.020 ± 1/2°

S ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433/CAA 586

GRUMMAN REL INFO (3) PRIM NO. 207 JK(001) ME-3H 12/12/8

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY R. CLARK

LAYOUT BY

CHECKED BY

GR LEADER 9/27/67

VEH DESINT 9/27/67

STRUCTURES 9/28/67

STRUCTURES 9/28

WEIGHTS

RELIABILITY

PROJ ENGR 9/27/67 9/28/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPRING-COMPRESSION
D/S ALSEP ESCAPEMENT
MECHANISM

SIZE	CODE IDENT NO.		
B	26512	LDW280-18352	A
SCALE	NONE	SHEET	1.00

ENG 77.12 9-64

CDR 10/6

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO280		EO NO. 753
CONTROL INFO NO. LDW280A9573		

IN M/B OF FOLLOWING DWGS. WITH DASH No. REVISE N/A AS FOLLOW
N/A LDW280-54626 WAS LDW280-54633

✓ DRAWING & DASH NO	CHANGE NO.	DRAWING TITLE
✓ LDW280M17754-11	A1	REEL D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17755-11	A1	RATCHET D/S ALSEP ESCAPEMENT MECH.
✓ LDW280M17756-11	B1	PAWL D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17758-11	A1	TERMINAL D/S ALSEP ESCAPEMENT MECH CABLE ADJ.
✓ LDW280M17759-13	A2	CHANNEL D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17773-11	A1	BUSHING D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17760-11	A1	GUIDE D/S ALSEP ESCAPEMENT MECH
✓ LDW280-18353-11 & -13	A1	PLATE D/S ALSEP ESCAPEMENT MECH.
✓ LDW280M17774-11	A1	PIN D/S ALSEP ESCHPEMENT MECH.
✓ LDW280M17786-11	A1	BUSHING D/S ALSEP ESCAPEMENT MECH
✓ LDW280P18354-11	A1	GROMMET D/S ALSEP ESCAPEMENT MECH.
✓ LDW280-18355-11	A1	WASHER SPRING D/S ALSEP ESCAPEMENT MECH.
✓ LDW280-18352-11	A1	SPRING COMPRESSION D/S ALSEP ESCAPEMENT MECH.
LDW280-18411-11	A1	WASHER D/S ALSEP LOCK MECH.

DETAIL SPEC REQ	☐	CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433 CCA 586 — 3

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE
CHANGE ASSEMBLY PROCEDURE	N/A LDW280-54626 WAS LDW280-54633	JK 10/16/67

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP	
LM		LM-4(34) THRU LM-15 45		✓		✓		
		DVT(70)						

APPROVED BY									
DATE	10/2/67			10/10/67	10/11/67		10/12/67	10-14-67
P	VDI	SUPPORT	REL'AB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	753

10/18/67
ISSUED BY R. CLARK/J STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280 | EO NO. 762
CONTROL INFO NO. LDW280A-9872

ADD LTA-3 (13) EFF. TO ALL DASH NOS. (*) OF THE FOLLOWING DWGS:

DWG NO.	NO. REQD PER VEH	N/A	TITLE	CHG NO	DWG NO.	NO. REQD PER VEH	N/A	TITLE	CHG NO
LDW280M17749	1 EA.	LDW280-54626	SEE DWG	A1 ✓	LDW280M17760	2	LDW280-54626	SEE DWG	✓ A2
↕ M17750	2	↕	↕	A1 ✓	↕		↕	↕	
↕ M17751	2	↕	↕	A2 ✓	↕ 18352	2	↕	↕	✓ A2
↕ M17754	2	↕	↕	A2 ✓	↕ 18355	5	↕	↕	A3
↕ M17755	2	↕	↕	A2 ✓	↕ 18411	2	↕	↕	A2
↕ M17756	2	↕	↕	A2 ✓	↕ P18354	2	↕	↕	A2
↕ M17757	2	↕	↕	A2 ✓	↕ M17773	2	↕	↕	A2
↕ M17758	2	↕	↕	A2 ✓	↕ M17774	2	↕	↕	A2
LDW280M17759	2	LDW280-54626	SEE DWG	A3 ✓	LDW280M17786	4	LDW280-54626	SEE DWG	A2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA 586 (P) 5

REASON FOR EO: TO INCLUDE ALSEP ON LTA-3

DESCRIPTION OF EO: ADDED LTA-3 (13) EFFECTIVITY & QUANTITY TO DASH NOS. *

GAEC EO RELEASE: JK 10/26/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQ

APPROVED BY								
APPROVED BY	JAP			JAS	WJ			
DATE	10/20/67			10/20/67	11/1/67		10/31/67	10-26-67
B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO-280	762

10-31-67
ISSUED BY W MAJUK x1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18352
EO NO. A3
CONTROL INFO NO. LM 29-1109

ON -11 REVISE "INSPECTION TEST LOAD AT" 1.40 S/B .75.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

(29)

REASON FOR EO: INCORRECT NUMBER USED TO DETERMINE LOAD REQUIREMENTS.

DESCRIPTION OF EO: ON-11 REVISED "INSPECTION TEST LOAD AT" 1.40 S/B .75

® GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	THRU
		LM-15(45)	
		DVT 70 LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓; RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	JAS			—	—	WF	JA	
DATE	3/2/67			—	—	11/15/67	11/21/67	11-22-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~QC~~

PRIORITY: C29

DRAWING TITLE: SPRING-COMPRESSION D/S ALSEP ESCAPEMENT MECHANISM

DRAWING NO.: LDW 280-18352

EO NO.: A3

ISSUED BY LIAISON C.J. MONTEBELLO X7930 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18352
EO NO. A4
CONTROL INFO NO. LM 29-1109

ON-11 REVISE "INSPECTION TEST LOAD AT" 1.40 S/B .75.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	29

REASON FOR EO: INCORRECT NUMBER USED TO DETERMINE LOAD. REQUIREMENTS.

DESCRIPTION OF EO: ON-11 REVISED "INSPECTION TEST LOAD AT" 1.40 S/B .75.

(B) GAEC C EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45)	
		DVT TO LTA-3(13)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK; SCRAP

APPROVED BY				—	~	W.F.	JAP		
DATE	12/2/67			—	~	11/15/67	12/2/67	12-4-67	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~	

PRIORITY: C2

DRAWING TITLE: SPRING-COMPRESSION D/S ALSEP ESCAPEMENT MECHANISM

DRAWING NO.: LDW280-18352

EO NO.: A4

ISSUED BY LIAISON C.J. MONTEBELLO X7930 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1003

CONTROL INFO NO. LDW 280 B 3641

THIS IS A REVISION OF LEO 280-947

FOR THE FOLLOWING PART NO'S. REVISE QUANTITIES AS NOTED.

PART NO (*1)	TITLE	REQD WAS (*2)	MOD IS (*3)	CHG NO.	NEW CHG. NO.
LDW280M17749-15	SEE DWG	2	1	A4	A5
M17749-16		2	1		
M17750-11		4	2	A4	A5
M17751-13		4	2	A3	A4
M17879-11		4	2	A1	A2
M17757-7		4	2	A7	A8
M17823-11		4	2	A2	A3
M17991-11		4	2	A1	A2
M17992-11		4	2	A2	A4
M17824-11		4	2	A1	A2
M17827-11		8	4	A1	A2
-18415-11		8	4	A1	A2
-18413-11		4	2	A1	A2
M17832-11		4	2	A2	A3
-18420-23		4	2	A4	A6
-18420-11		2	1		
-18420-12		2	1		
-18420-13		2	1		
-18420-14		2	1		
-18420-24		4	2		
LDW 280 -18355-11	SEE DWG.	20	10	A4	A5

PART NO (*1)	TITLE	REQD WAS (*2)	MOD IS (*3)	CHG. NO.	NEW CHG. NO.
LDW280-18353-11	SEE DWG.	4	2	A5	A6
-18353-13		1	1		
-18353-15		4	2		
-18352-11		4	2	A5	A6
-18411-21		4	2	A8	A9
M17786-11		4	2	A4	A5
M17786-13		4	2		
M17995-11		4	2	A1	A2
M17996-11		4	2	A1	A2
M17993-11		4	2	A1	A2
M17993-13		4	2		
M17994-11		4	2	A1	A2
M17754-11		4	2	A4	A5
M17755-11		4	2	A3	A4
M17756-11		4	2	B4	B5
M17758-11		2	1	A3	A4
M71502-11		2	1	B1	B2
M17760-13		4	2	B1	B2
M17773-11		8	4	A3	A4
M17774-13		4	2	B1	B2
P18354-11		2	1	A4	A5
LDW280 P18421-11	SEE DWG	12	6	A1	A2

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2F (5)

REASON FOR EO: REVISE QUANTITIES REQD/MOD FOR TM-5/R.

DESCRIPTION OF EO: ON (*1), (*3) REQ/MOD. WAS (*2) FOR TM-5/R(65)

GAEC/C EO RELEASE: 6/10/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CGT~~
APPROVED BY								
DATE	5/31/68			5/29/68	6/1/68		6/1/68	6-8-68

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO 280

EO NO.: 1003

053168

ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 230 PL 25

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 947
CONTROL INFO NO. LDW280B3382

FOR THE FOLLOWING PARTS, ADD TM-5/R(65) REQMTS, N/A LDW280-54626 FOR THE QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD.	CHG. NO.
LDW280M17749-15	SEE DWG	2	A4
M17749-16		2	
M17750-11		4	A4
M17751-13		4	A3
M17879-11		4	A1
M17757-7		4	A7
M17823-11		4	A2
M17991-11		4	A1
M17992-11		4	A2
M17824-11		4	A1
M17827-11		8	A1
-18415-11		8	A1
-18413-11		4	A1
M17832-11		4	A2
-18420-23		4	A4
-18420-11		2	
-18420-12		2	
-18420-13		2	
-18420-14		2	
-18420-24		4	
-18353-11		4	A5
-18353-13		1	
-18353-15		4	
-18355-11		20	A4
-18352-11		4	A5
LDW280-18411-21	SEE DWG	4	A8

PART NO. *	TITLE	REQD/MOD	CHG. NO.
LDW280 M17786-11	SEE DWG.	4	A4
M17786-13		4	
M17995-11		4	A1
M17996-11		4	A1
M17993-11		4	A1
M17993-13		4	
M17994-11		4	A1
M17754-11		4	A4
M17755-11		4	A3
M17756-11		4	B4
M17758-11		2	A3
M71502-11		2	B1
M17760-13		4	B1
M17773-11		8	A3
M17774-13		4	B1
P18354-11		2	A4
LDW280 P18421-11	SEE DWG	12	A1

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NAS 9-1100

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 CCA 586 PKG 2F (5)

REASON FOR EO	DESCRIPTION OF EO
ADD TM-5/R(65) REQMTS.	ON (*) ADDED TM-5/R(65) REQMTS.

GAEC EO RELEASE: C — JK 5/16/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQD. (REWORK | SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
	JAS			GM 887	WJH			
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-16-68
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 947

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1360
CONTROL INFO NO. DW280B7428		

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18344 ✓	A4	SEE DWG.
-18346 ✓	A4	
-18348 ✓	A3	
-18349 ✓	A9	
-18350 ✓	A5	
-18351 ✓	A3	
-18352 ✓	B1	
-18353	B1	
-18355	B1	
LDW280 -18356	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG54 PG4 CCA1821 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LM-15(45) NO LONGER REQD	DELETED LM-15(45) EFF FROM -*	JK 4/18/69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/8/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1360

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 333 25

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NAS 9-1100

THIS IS AN
ORIGINAL E.O.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1527
CONTROL INFO NO. LDW 280B 8110

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW 280-18340 ✓	SEE DWG	A6
42 ✓		A5
43 ✓		A4
44 ✓		A5
46 ✓		A5
48 ✓		A4
49 ✓		B1
50 ✓		A6
51 ✓		A4
LDW 280-18352 ✓	SEE DWG	B2

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3890 PKG 99 PG 30 & 31 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE: 8-6-69 | JK 8/9/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted])	
		(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY					M			Baumann
DATE	7-29-69			7/29/69	8/2/69		7/31/69	8-9-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO.: LEO 280 | EO NO.: 1527

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 2.00, 3.00 & 1.10		P					INC LE0280-753 ADDED SH. 1.10	LM-4 THRU LM 15, DVT			H. BARFOOT 4-19-68		
	2	1.00, 2.00, & 3.00		P					INC EO A2	LTA-3 LM-4 THRU LM-15, DVT					
	3	1.00, 2.00 & 3.00							INC EO A3	LTA-3 LM-4 THRU LM-15, DVT					
	4	1.00, 2.00 & 3.00							INC EO A4	LM-4 THRU LM-15, DVT					
	5	1.00 & 1.10							INC LE0280-947	TM-5/R			E. COX 3-24-69		3-29-69
	6	1.00 & 1.10							INC LE0280-1003	TM-5/R					
	7	1.00, 200 & 3.00						Ⓡ	INC EO A7	LM-5 THRU LM-15, DVT, TM-5/R		joeb			

CHG APPROVED										
LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	RELIABILITY				
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18353	A
SCALE NONE		SHEET 1.10	Ⓐ

ENG 77.16 3-66

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NAS 9-1100

LDW280-18353 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54626	LTA-3	2
LM	LDW280-54626	LM-4(34)	2
PART NO. LDW280-18353-11&-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54626	TM-5/R(65)	1
LM	LDW280-54626	DESIGN VERIFICATION TEST (70)	2
LM		LM-15(45)	2
LM		LM-14(44)	2
LM		LM-13(43)	2
LM		LM-12(42)	2
LM		LM-11(41)	2
LM		LM-10(40)	2
LM		LM-9(39)	2
LM		LM-8(38)	2
LM		LM-7(37)	2
LM		LM-6(36)	2
LM		LM-5(35)	2
LM	LDW280-54626	LM-4(34)	2
PART NO. LDW280-18353-13		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54626	TM-5/R(65)	2 EA
LM		DESIGN VERIFICATION TEST (70)	2 EA
LM		LM-15(45)	2 EA
LM		LM-14(44)	2 EA
LM		LM-13(43)	2 EA
LM		LM-12(42)	2 EA
LM		LM-11(41)	2 EA
LM		LM-10(40)	2 EA
LM		LM-9(39)	2 EA
LM		LM-8(38)	2 EA
LM		LM-7(37)	2 EA
LM		LM-6(36)	2 EA
LM	LDW280-54626	LM-5(35)	2 EA
PART NO. LDW280-18353-17 -19		GAEC SCH NO. 50-2	

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO. 3/29/69 RFK		
		PRIM NO.	K(001)	
LAST DASH NO. USED	15	207	E-1	"A"-3/31/6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 CCA 586

CONTRACT NO. NAS 9-1100		LINE ITEM	DOCUMENTATION TYPE II
DRAWN BY	NORLAND 9/7/67	RELIABILITY	
LAYOUT BY	R. CLARK 9/12		
CHECKED BY	D. FASS 9-11-67		
GP LEADER	9/12/67		
VEH DES INT	9/12/67		
STRUCT	W.H.G. 9/13/67	PROJ ENGR	
STRUCT		REL GROUP	9-16-67
WEIGHT			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE
ESCAPEMENT MECHANISM

SIZE B | CODE IDENT NO. 26512 | LDW280-18353 | A
SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

CDR = 9/15

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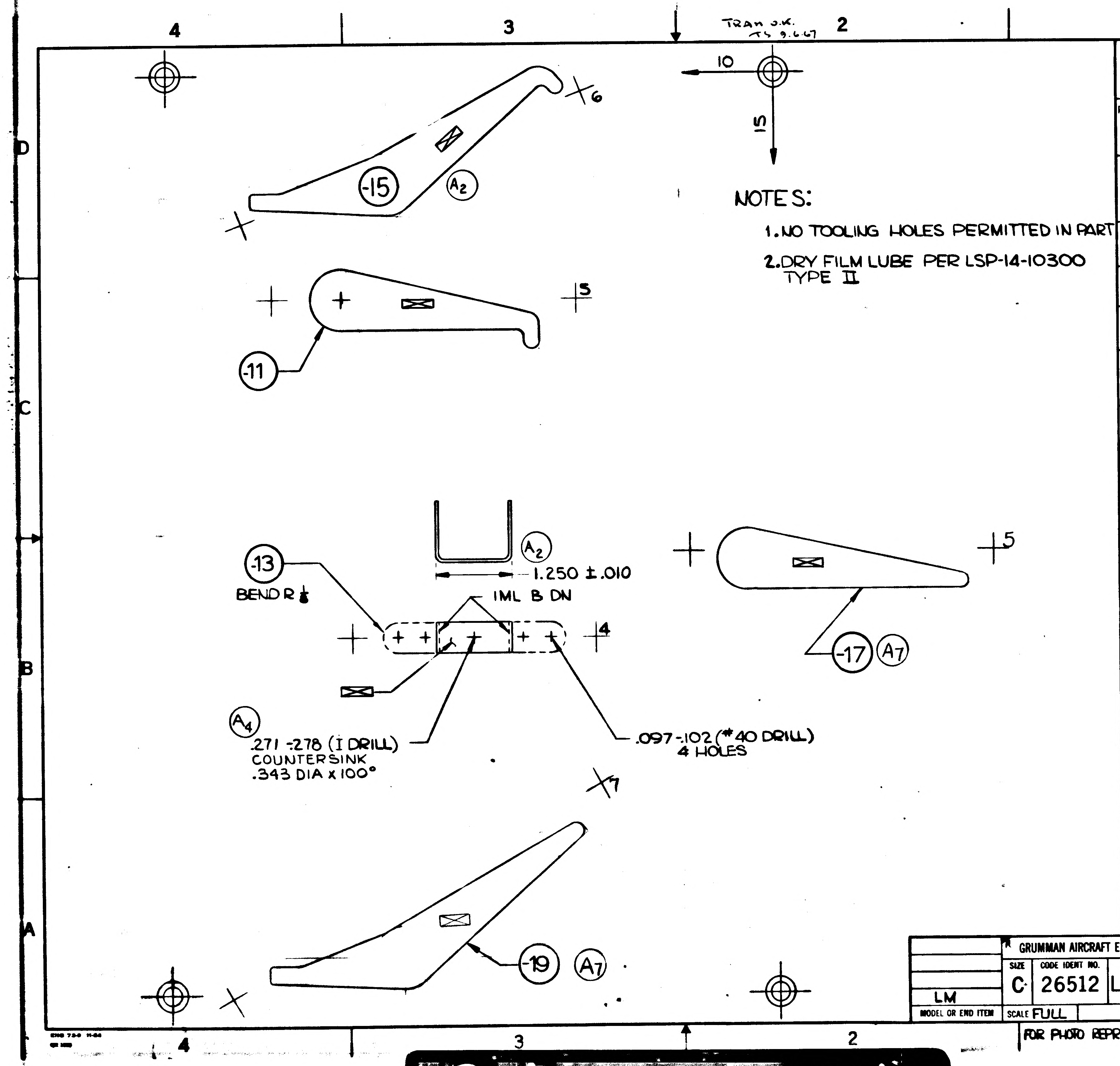
NAS 9-1100

TRAN O.K.
TS 9-6-67



NOTES:

1. NO TOOLING HOLES PERMITTED IN PART
2. DRY FILM LUBE PER LSP-14-10300
TYPE II

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

LDW280-18353 A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18353	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION 1

K2

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18353 -19	E	PLATE.	AL ALLOY SH.	QQ-A-250/12	7075-T6	063 x 2 x 7		NOTE 2	
		LDW280-18353 -17	E	PLATE	AL ALLOY SH.	QQ-A-250/12	7075-T6	063 x 2 x 5		NOTE 2	
		LDW280-18353-15	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.063 x 2 x 6	NONE	NOTE 2	
		LDW280-18353-13	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.050 x 1 x 4	T6	88	
		LDW280-18353-11	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.063 x 2 x 5	NONE	NOTE 2	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18353	A Ⓐ

SCALE NONE

SHEET 200

ENG 77.2 7-65

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LEO280

EO NO. 753

CONTROL INFO NO. LDW280A9573

IN M/B OF FOLLOWING DWGS. WITH DASH No. REVISE N/A AS FOLLOW
N/A LDW280-54626 WAS LDW280-54633

✓ DRAWING & DASH No	CHANGE NO.	DRAWING TITLE
✓ LDW280M17754-11	A1	REEL D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17755-11	A1	RATCHET D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17756-11	B1	PAWL D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17758-11	A1	TERMINAL D/S ALSEP ESCAPEMENT MECH CABLE ADJ.
✓ LDW280M17759-13	A2	CHANNEL D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17773-11	A1	BUSHING D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17760-11	A1	GUIDE D/S ALSEP ESCAPEMENT MECH
✓ LDW280-18353-11 & -13	A1	PLATE D/S ALSEP ESCAPEMENT MECH.
LDW280M17774-11	A1	PIN D/S ALSEP ESCAPEMENT MECH.
LDW280M17786-11	A1	BUSHING D/S ALSEP ESCAPEMENT MECH
LDW280P18354-11	A1	GROMMET D/S ALSEP ESCAPEMENT MECH.
LDW280-18355-11	A1	WASHER SPRING D/S ALSEP ESCAPEMENT MECH.
LDW280-18352-11	A1	SPRING COMPRESSION D/S ALSEP ESCAPEMENT MECH.
LDW280-18411-11	A1	WASHER D/S ALSEP LOCK MECH.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1433 CCA 586 3

REASON FOR EO: CHANGE ASSEMBLY PROCEDURE

DESCRIPTION OF EO: N/A LDW280-54626 WAS LDW280-54633

Ⓡ GAEC EO RELEASE 10/16/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15 45 DVT(70)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY								
DATE	10/9/67			10/9/67	10/11/67		10/12/67	10-14-67
P	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO280

EO NO.: 753

ISSUED BY R. CLARK/J STRAKOSCH 10/18/67 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

1 REV 3-65

DWG. NO.	LDW280-18353	EO NO.	A3
CONTROL INFO NO.	LM-2-4124		

REFERENCE EO-A2

FOR -15
ADD MATERIAL & FINISH REQUIREMENTS:
AL ALLOY SH QQ-A-250/12 7075-T6
FINISH: "SEE NOTE 2"

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA 586

REASON FOR EO: ADDED POSITIVE LOCK FOR ESCAPEMENT MECHANISM

DESCRIPTION OF EO: REFERENCE EO-A2 FOR -15, ADDED MATERIAL & FINISH CALLOUTS.

GAEC EO RELEASE: JK 03181

2

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13), LM-4(34)	
		THRU LM-15(45)	
		DVT(70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQD
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					—				
DATE	11/11/67				—	10/31/67	10/31/67	11/11/67	11-1-67
	VDI	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE~DESCENT STAGE ESCAPEMENT MECHANISM	LDW280-18353	A3

ISSUED BY LIAISON J. MALONEY 10/31/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18353
EO NO. A4
CONTROL INFO NO. LM-29-1177

FOR -13

.249-.255 (1/4 DRILL) CHANGE TO .271 - .278 (I DRILL) COUNTERSINK
.343 DIA X 100°

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: ENLARGE TO ACCOMADATE GROMMET

DESCRIPTION OF EO: FOR-13 REVISE DRILL NOTE .260-.267 (G DRILL) COUNTERSINK .312 DIA X 100° NEARSIDE

(29)

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34), LM15-(45)	
		DESIGN VERIFICATION TEST (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	JAS			—	MJS	W.F.		
DATE	2/1/68			—	2/6/68	2/5/68	2/5/68	2-8-68
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: PLATE DESCENT STAGE ESCAPEMENT MECHANISM
DRAWING NO.: LDW280-18353
EO NO.: A4

ISSUED BY LIAISON JOHN MAYOKA X7903 SECTION VD1 GROUP NO. 280 PL 5

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1003
CONTROL INFO NO. LDW280B3641

THIS IS A REVISION OF LEO 280-947

FOR THE FOLLOWING PART NO'S. REVISE QUANTITIES AS NOTED.

PART NO(✱1)	TITLE	REQD/MOD WAS (✱2)	REQD/MOD IS (✱3)	CHG NO.	NEW CHG NO.
LDW280M17749-15	SEE DWG	2	1	A4	A5
M17749-16		2	1		
M17750-11		4	2	A4	A5
M17751-13		4	2	A3	A4
M17879-11		4	2	A1	A2
M17757-7		4	2	A7	A8
M17823-11		4	2	A2	A3
M17991-11		4	2	A1	A2
M17992-11		4	2	A2	A4
M17824-11		4	2	A1	A2
M17827-11		8	4	A1	A2
-18415-11		8	4	A1	A2
-18413-11		4	2	A1	A2
M17832-11		4	2	A2	A3
-18420-23		4	2	A4	A6
-18420-11		2	1		
-18420-12		2	1		
-18420-13		2	1		
-18420-14		2	1		
-18420-24		4	2		
LDW280 -18355-11	SEE DWG.	20	10	A4	A5

PART NO(✱1)	TITLE	REQD/MOD. WAS (✱2)	REQD/MOD. IS (✱3)	CHG. NO.	NEW CHG NO.
LDW280-18353-11	SEE DWG.	4	2	A5	A6
-18353-13		1	1		
-18353-15		4	2		
-18352-11		4	2	A5	A6
-18411-21		4	2	A8	A9
M17786-11		4	2	A4	A5
M17786-13		4	2		
M17995-11		4	2	A1	A2
M17996-11		4	2	A1	A2
M17993-11		4	2	A1	A2
M17993-13		4	2		
M17994-11		4	2	A1	A2
M17754-11		4	2	A4	A5
M17755-11		4	2	A3	A4
M17756-11		4	2	B4	B5
M17758-11		2	1	A3	A4
M71502-11		2	1	B1	B2
M17760-13		4	2	B1	B2
M17773-11		8	4	A3	A4
M17774-13		4	2	B1	B2
P18354-11		2	1	A4	A5
LDW280 P18421-11	SEE DWG	12	6	A1	A2

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 CCA 586 PKG 2F (5)

REASON FOR EO: REVISE QUANTITIES REQD/MOD FOR TM-5/R.

DESCRIPTION OF EO: ON (✱1), (✱3) REQ/MOD, WAS (✱2) FOR TM-5/R(65)

GAEC I/C EO RELEASE: JK 6/10/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	5/31/68 VDI			5/29/68	6/1/68		6/1/68	6-6-68

PRIORITY C

DRAWING TITLE SEE DWG.

DRAWING NO. LEO 280

EO NO. 1003

053168
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 230 PL 25

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NAS 9-1100

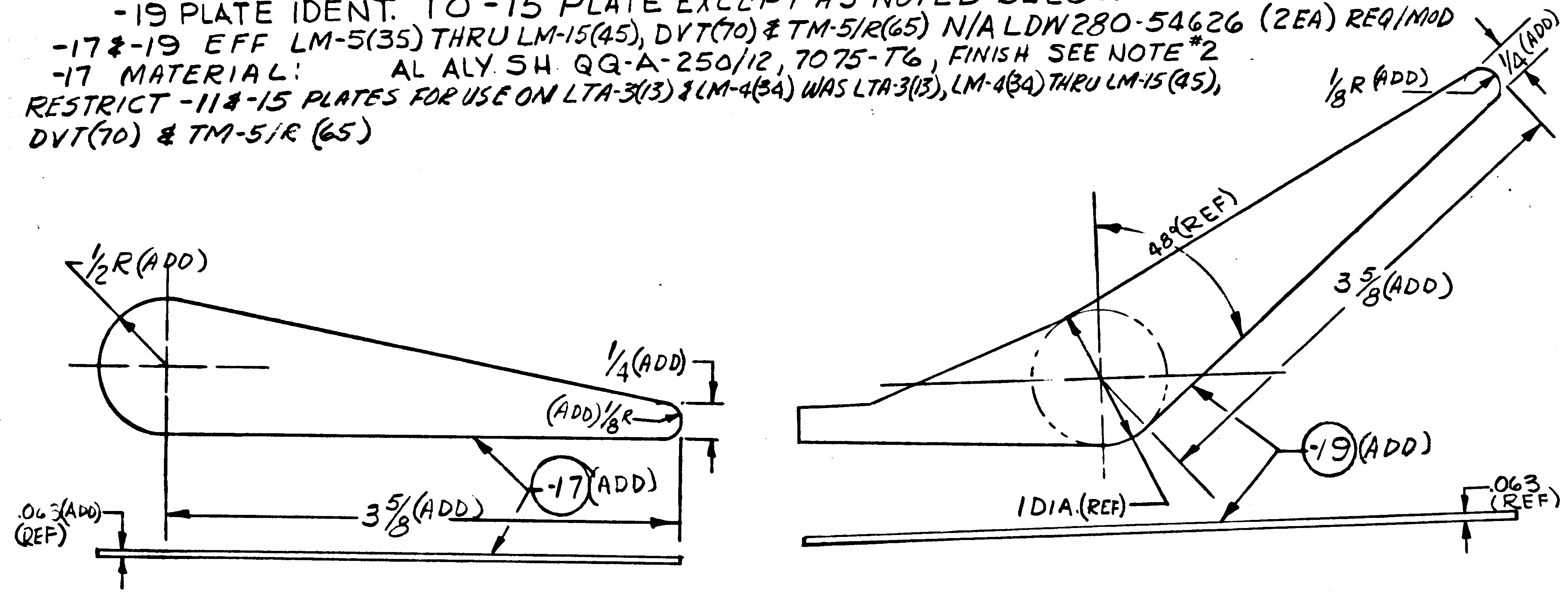
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280 18353		EO NO. A7
CONTROL INFO NO. LDW280B5701		

ADD -17 PLATE AS SHOWN BELOW
-19 PLATE IDENT. TO -15 PLATE EXCEPT AS NOTED BELOW
-17 & -19 EFF LM-5(35) THRU LM-15(45), DVT(70) & TM-5/R(65) N/A LDW280-54626 (2EA) REQ/MOD
-17 MATERIAL: AL ALY SH QQ-A-250/12, 7075-T6, FINISH SEE NOTE #2
RESTRICT -11 & -15 PLATES FOR USE ON LTA-3(13) & LM-4(34) WAS LTA-3(13), LM-4(34) THRU LM-15(45), DVT(70) & TM-5/R (65)



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD1433 CCA586, ECP A020R PKG 30-	LCD 3075 CCA586 PKG 2L (5)

REASON FOR EO: TO ELIMINATE FIT PROBLEM WITH MATING PART.

DESCRIPTION OF EO: ADDED -17 & -19 PLATES RESTRICTED -11 & -15 ON LTA-3(13) & LM-4(34) WAS LTA-3(13), LM-4(34) THRU LM-15(45), DVT(70) & TM-5/R (65)

GAEC EO RELEASE: SK 10/4/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-5(35) THRU	
		LM-15(45) DVT(70)	
		TM-5/R (65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-11 -15

APPROVED BY	JaP			PSf	WJM BK		JaP	JM
DATE	9/30/68			9/30/68	10/1/68		9/30/68	10-4-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: PLATE D/S ESCAPEMENT MECHANISM

DRAWING NO.: LDW280-18353

EO NO.: A7

CDR 10/11/68
ISSUED BY R. CLARK/P THORJUSEN X1153 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280
EO NO. 1566
CONTROL INFO NO. LDW 280B 8112

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18353	SEE DWG	B2
355		B2
356		B2
358		A2
359		A2
360		A2
361		A2
362		B2
363		A3
LDW280-18364	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 31 & 32 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

Ⓡ GAEC EO RELEASE: 8-13-69; JK 8/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	APPROVED BY	DATE
VDI		7-29-69
SUPPORT		
RELIAB. GROUP		
GROUP LEADER		7/27/69
STRESS GROUP	N	8/1/69
LIAISON ENGRG		
PROJ ENGRG		8/7/69
	Bauman	8-16-69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO: LEO 280
EO NO. 1566

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18355 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54626	TM-5/R(65)	10
		LTA-3(13)	5
		LM-15(45)	16
		LM-14(44)	16
		LM-13(43)	16
		LM-12(42)	16
		LM-11(41)	16
		LM-10(40)	16
		LM-9(39)	16
		LM-8(38)	16
		LM-7(37)	16
		LM-6(36)	16
		LM-5(35)	16
LM	LDW280-54626	LM4(34)	16

PART NO. LDW 280-18355-11

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00				
REV	A	A	A	A				
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL C INFO A

PRIM NO. 207 JK(001) ME-1A-4/25/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±½°

5 ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433/CAA 586

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE

DRAWN BY J. HARAN 9-12-67

RELIABILITY

LAYOUT BY B.CLARKE

CHECKED BY 9.16.67

GP LEADER J. Stedecal 9/22/67

VEH DES INT J. Stedecal 9/27/67

STRUCT 9/28/67

STRUCT 9/21

PROJ ENGR 9/27/67

REL GROUP 9/28/67

WEIGHTS

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WASHER SPRING
DESCENT STAGE
ESCAPEMENT MECHANISM

SIZE B

CODE IDENT NO. 26512

LDW280-18355 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

10/1

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW 280-18355-11	E	WASHER SPRING	STEEL SHT	MIL-S-7947	1095	.040 × 1¼ × 1¼	SEE NOTE 3	SEE NOTE 1	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18355	A Ⓐ
SCALE NONE			SHEET 2.00

ENG 77.2 7-66

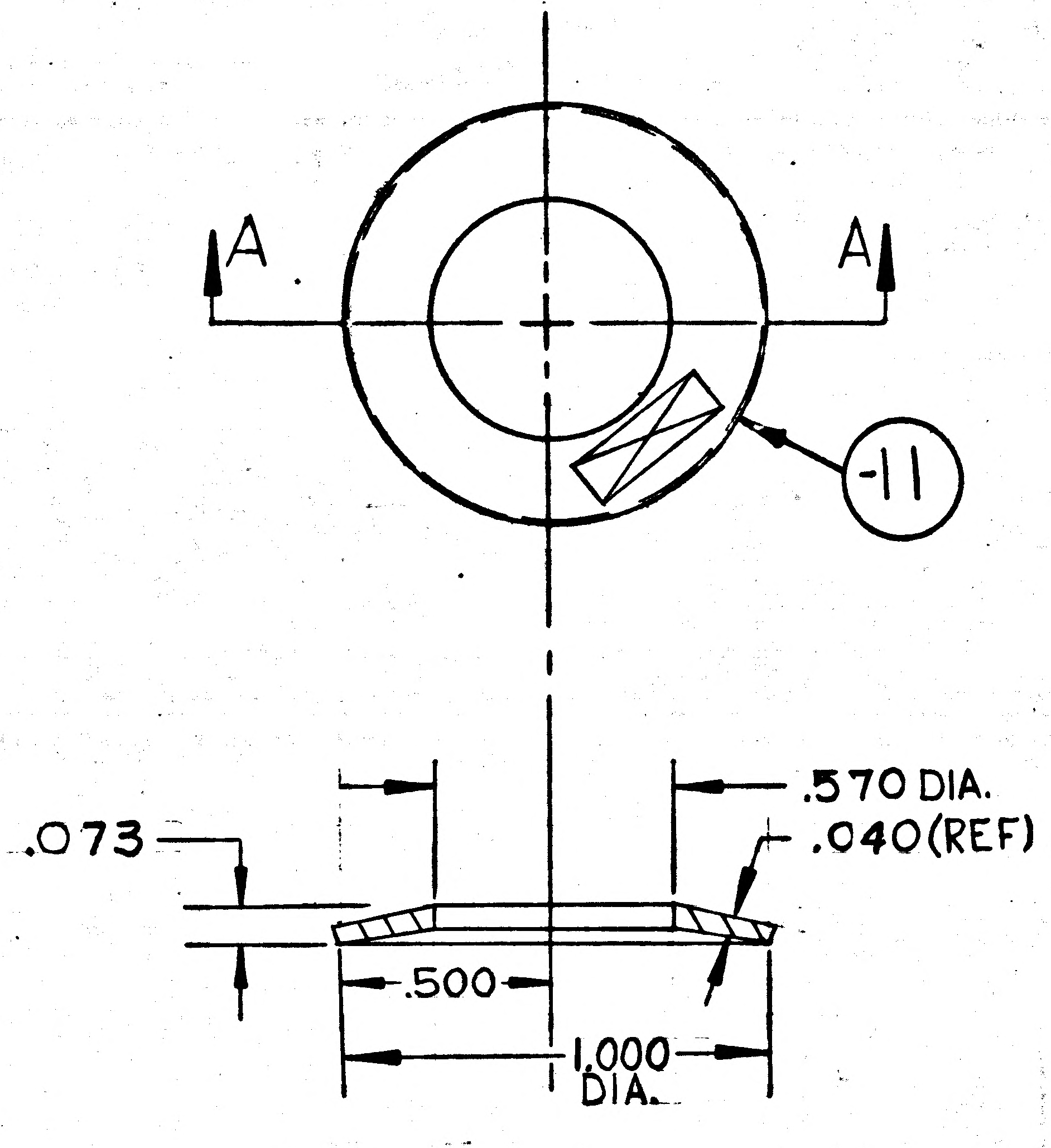
01

NAS 9-1100

NOTE
1. TIN PLATE PER LSP 14-8300
2. NO TOOLING HOLES PERMITTED IN PARTS
3. HEAT TREAT TO SPRING TEMPER C-47 TO C-52

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG

RUBBER STAMP PART NUMBER
AND ALL OTHER MARKINGS
IN LOCATION MARKED ⊠
USE BOTH SIDES IF NECESSARY ✓



SECTION A-A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18355	A
SCALE 2:1			SHEET 3.00

ENG 73.1 6-64

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.0, 1.10		P					INC LEO 280-753	LM-4 THRU LM-15 & DVT			E. COX 10-24-68		
	2	1.0, 1.10 2.0 & 3.0							INC EO A2	LM-4 THRU LM-15					
	3	1.0, 1.10		B					INC LEO 280-762	LTA-3 (13)					
	4	1.0, 1.10							INC LEO 280-947	TM-5/R					
	5	1.0, 1.10						②	INC LEO 280-1003	TM-5/R (65)			JoeB		

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18355	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-66

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 753
CONTROL INFO NO. LDW280A9573

N/A IN M/B OF FOLLOWING DWGS. WITH DASH NO. REVISE N/A AS FOLLOW
N/A LDW280-54626 WAS LDW280-54633

✓ DRAWING & DASH NO	CHANGE NO.	DRAWING TITLE
✓ LDW280M17754-11	A1	REEL D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17755-11	A1	RATCHET D/S ALSEP ESCAPEMENT MECH.
✓ LDW280M17756-11	B1	PAWL D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17758-11	A1	TERMINAL D/S ALSEP ESCAPEMENT MECH CABLE ADJ.
✓ LDW280M17759-13	A2	CHANNEL D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17773-11	A1	BUSHING D/S ALSEP ESCAPEMENT MECH
✓ LDW280M17760-11	A1	GUIDE D/S ALSEP ESCAPEMENT MECH
✓ LDW280-18353-11 & -13	A1	PLATE D/S ALSEP ESCAPEMENT MECH.
✓ LDW280M17774-11	A1	PIN D/S ALSEP ESCAPEMENT MECH.
✓ LDW280M17786-11	A1	BUSHING D/S ALSEP ESCAPEMENT MECH
✓ LDW280P18354-11	A1	GROMMET D/S ALSEP ESCAPEMENT MECH.
✓ LDW280-18355-11	A1	WASHER SPRING D/S ALSEP ESCAPEMENT MECH.
LDW280-18352-11	A1	SPRING COMPRESSION D/S ALSEP ESCAPEMENT MECH.
LDW280-18411-11	A1	WASHER D/S ALSEP LOCK MECH.

DETAIL SPEC REQ		CL II ENGRG CHG	CL I ENGRG CHG	✓ LCD 1433 CCA 586	3

REASON FOR EO: CHANGE ASSEMBLY PROCEDURE

DESCRIPTION OF EO: N/A LDW280-54626 WAS LDW280-54633

(R) GAEC EO RELEASE: JK 10/16/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34) THRU LM-15 45 DVT (70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY									
DATE	10/9/67			10/10/67	10/11/67		10/12/67	10-14-67
P	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 753

10/18/67
ISSUED BY R. CLARK / J STRAKOSCH
SECTION VDI
GROUP NO. 335
PL 25

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NAS 9-1100

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18355
EO NO. A2
CONTROL INFO NO. LM-2-AC[illegible]

FOR -11
IN B/M REVISE CALLOUTS:
MATERIAL COLUMN - "CRES SHT" S/B "STEEL SHT"
PROCESS COLUMN - "NONE" S/B "SEE NOTE *"

IN NOTES:
REVISE NOTE #1 TO READ AS FOLLOWS:
"TIN PLATE PER LSP14-8300"
WAS:
"DRY FILM LUBE PER LSP14-10300 TYPE II"

ADD NOTE * TO READ AS FOLLOWS:
"HEAT TREAT TO SPRING TEMPER C-47 TO C-52"

*DENOTES NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐

REASON FOR EO: (DRAWING CORRECTION ONLY) MATL CALLOUT DISAGREED WITH COML SPEC CALLOUT. DRY FILM LUBE N/A TO CARBON STEEL.

DESCRIPTION OF EO: FOR -11, IN B/M MATL "STEEL SHT" WAS "CRES SHT" & ADDED "SEE NOTE *" IN PROCESS COL. NOTE #1, WAS "DRY FILM LUBE PER LSP14-10300 TYPE II", ADDED NOTE *.

GAEC EO RELEASE: 2 C
JK
03131

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(134) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

APPROVED BY	JAH			—	[illegible]	Ctf	MRB	[illegible]
DATE	9/22/67			—	10/18/67	10/17/67	9/25/67	10-19-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY C
DRAWING TITLE: WASHER, SPRING ~ DESCENT STAGE ~ ESCAPEMENT MECHANISM
DRAWING NO. LDW280-18355
EO NO. A2

ISSUED BY LIAISON J. MALONEY 10/17/67 SECTION V.D.I GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO-280
EO NO. 762
CONTROL INFO NO. LDW280A-9872

ADD LTA-3 (13) EFF. TO ALL DASH NOS. (*) OF THE FOLLOWING DWGS:

DWG NO.	NO. REQD PER VEH	N/A	TITLE	CHG NO	DWG NO.	NO. REQD PER VEH	N/A	TITLE	CHG NO
LDW280M17749	1 EA.	LDW280-54626	SEE DWG	A1 ✓	LDW280M17760	2	LDW280-54626	SEE DWG	✓ A2
M17750	2			A1 ✓	-				
M17751	2			A2 ✓	18352	2			✓ A2
M17754	2			A2 ✓	18355	5			✓ A3
M17755	2			A2 ✓	18411	2			A2
M17756	2			A2 ✓	P18354	2			A2
M17757	2			A2 ✓	M17773	2			A2
M17758	2			A2 ✓	M17774	2			A2
LDW280M17759	2	LDW280-54626	SEE DWG	A3 ✓	LDW280M17786	4	LDW280-54626	SEE DWG	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD1433 CCA 586 Ⓡ 5

REASON FOR EO: TO INCLUDE ALSEP ON LTA-3

DESCRIPTION OF EO: ADDED LTA-3 (13) EFFECTIVITY & QUANTITY TO DASH NOS. *

GAEC EO RELEASE: JK 10/26/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT REQ SCRAP

APPROVED BY: JAP DATE 10/20/67 B VDI

SUPPORT RELIAB. GROUP

GROUP LEADER: 10/20/67

STRESS GROUP: 10/21/67

LIAISON ENGRG

PROJ ENGRG

10-26-67

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO-280

EO NO.: 762

10-31-67
ISSUED BY W MAJUK x1153 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 947
CONTROL INFO NO. LDW280B3382

FOR THE FOLLOWING PARTS, ADD TM-5/R(65) REQMTS, N/A LDW280-54626 FOR THE QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. NO.
LDW280M17749-15	SEE DWG	2	A4
M17749-16		2	
M17750-11		4	A4
M17751-13		4	A3
M17879-11		4	A1
M17757-7		4	A7
M17823-11		4	A2
M17991-11		4	A1
M17992-11		4	A2
M17824-11		4	A1
M17827-11		8	A1
-18415-11		8	A1
-18413-11		4	A1
M17832-11		4	A2
-18420-23		4	A4
-18420-11		2	
-18420-12		2	
-18420-13		2	
-18420-14		2	
-18420-24		4	
-18353-11		4	A5
-18353-13		1	
-18353-15		4	
-18355-11		20	A4
-18352-11		4	A5
LDW280-18411-21	SEE DWG	4	A8

PART NO. *	TITLE	REQD/MOD	CHG. NO.
LDW280M17786-11	SEE DWG.	4	A4
M17786-13		4	
M17995-11		4	A1
M17996-11		4	A1
M17993-11		4	A1
M17993-13		4	
M17994-11		4	A1
M17754-11		4	A4
M17755-11		4	A3
M17756-11		4	B4
M17758-11		2	A3
M71502-11		2	B1
M17760-13		4	B1
M17773-11		8	A3
M17774-13		4	B1
P18354-11		2	A4
LDW280P18421-11	SEE DWG	12	A1

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NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3025 CCA 586 PKG 2F (5)

GAEC C EO RELEASE JK 5/16/68

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD. (REWORK / SCRAP)
APPROVED BY: VDI 5/13/68; SUPPORT; RELIAB. GROUP; GROUP LEADER 5-13-68; STRESS GROUP 5/13/68; LIAISON ENGRG; PROJ ENGRG 5/13/68; 5-16-68

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 947

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO/003
CONTROL INFO NO. LDW280B3641

THIS IS A REVISION OF LEO 280-947

FOR THE FOLLOWING PART NO'S. REVISE QUANTITIES AS NOTED.

PART NO(*1)	TITLE	REQD/MOD WAS (*2)	REQD/MOD IS (*3)	CHG NO.	NEW CHG. NO.
LDW280M17749-15	SEE DWG	2	1	A4	A5
M17749-16		2	1		
M17750-11		4	2	A4	A5
M17751-13		4	2	A3	A4
M17879-11		4	2	A1	A2
M17757-7		4	2	A7	A8
M17823-11		4	2	A2	A3
M17991-11		4	2	A1	A2
M17992-11		4	2	A2	A4
M17824-11		4	2	A1	A2
M17827-11		8	4	A1	A2
-18415-11		8	4	A1	A2
-18413-11		4	2	A1	A2
M17832-11		4	2	A2	A3
-18420-23		4	2	A4	A6
-18420-11		2	1		
-18420-12		2	1		
-18420-13		2	1		
-18420-14		2	1		
-18420-24		4	2		
LDW280 -18355-11	SEE DWG.	20	10	A4	A5

PART NO(*1)	TITLE	REQD/MOD WAS (*2)	REQD/MOD IS (*3)	CHG.NO.	NEW CHG.NO.
LDW280-18353-11	SEE DWG.	4	2	A5	A6
-18353-13		1	1		
-18353-15		4	2		
-18352-11		4	2	A5	A6
-18411-21		4	2	A8	A9
M17786-11		4	2	A4	A5
M17786-13		4	2		
M17995-11		4	2	A1	A2
M17996-11		4	2	A1	A2
M17993-11		4	2	A1	A2
M17993-13		4	2		
M17994-11		4	2	A1	A2
M17754-11		4	2	A4	A5
M17755-11		4	2	A3	A4
M17756-11		4	2	B4	B5
M17758-11		2	1	A3	A4
M71502-11		2	1	B1	B2
M17760-13		4	2	B1	B2
M17773-11		8	4	A3	A4
M17774-13		4	2	B1	B2
P18354-11		2	1	A4	A5
LDW280 P18421-11	SEE DWG	12	6	A1	A2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3075 CCA 586 PKG 2F (5)

REASON FOR EO: REVISE QUANTITIES REQD/MOD FOR TM-5/R.

DESCRIPTION OF EO: ON (*1), (*3) REQ/MOD, WAS (*2) FOR TM-5/R(65)

GAEC/C EO RELEASE: JK 6/10/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: ☐ REWORK ✓ SCRAP

APPROVED BY	Jap			PST	WH		Jap	JM
DATE	5/31/68			5/29/68	6/4/68		6/1/68	6-8-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CCPT~~

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO 280

EO NO.: 1003

063168
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 230 PL 25

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NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1360
CONTROL INFO NO. LDW280B7468

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18344 ✓	A4	SEE DWG.
-18346 ✓	A4	↑
-18348 ✓	A3	
-18349 ✓	A9	
-18350 ✓	A5	
-18351 ✓	A3	
-18352	B1	
-18353 ✓	B1	
-18355 ✓	B1	↓
LDW280-18356	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG54 PG4 CCA1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: JJC 4/18/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/8/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1360

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
E IDENT NO. 26512
ENGINEERING ORDER

[illegible] LEO 280		EO NO. 1566
CONTROL INFO NO. LDW280B 8112		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18353	SEE DWG	B2
355		B2
356		B2
358		A2
359		A2
360		A2
361		A2
362		B2
363		A3
LDW280-18364	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 31 & 32 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

Ⓡ GAEC EO RELEASE: SJB 8-13-69; JK 8/13/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
		NOT REQ'D						N		Bauman	
				DATE	7-29-69			7/2/69	8/1/69		8/1/69	8-16-69
REVISE DWG ✓	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1566

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

LDW280-18356 A

LM	LDW280-54575	LTA-3(13)	2
PART NO. LDW280-18356 -34			

LM	LDW280-54575	LTA-3 (13)	1 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18356 -27, -29 & -31			

LM	LDW280-54575	TM-5/R(65)	1
LM	LDW280-54575	LTA-3 (13)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18356 -13			

LM	LDW280-54575	TM-5/R(65)	1 EA
		LM-15 (45)	
		LM-14 (44)	
		LM-13 (43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5 (35)	
		LM-4 (34)	
LM	LDW280-54575	DVT (70)	1 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18356 -31-1, -35 & -36			

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	
REV	
SHEET	
REV	
SHEET	
REV	
LAST SECT LTR USED	
LAST DASH NO. USED	

GRUMMAN REL INFO
PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
LINE ITEM
DOCUMENTATION TYPE
DRAWN BY
LAYOUT BY
CHECKED BY
PROJ ENGR
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18356	A
SCALE NONE		SHEET 1.01 OF	

ENG 77.1 12-66

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NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	10	1.00, 1.01,1.11, 2.00 & 3.00	5C				✓	EO A10 LCD 3075 LCD 1433 CCA586	REF EO A9 S/B REMOVED: -34 (WAS) FOR -34, 1 REQD/VEH (WAS 2 REQD/VEH) ADDED SH. 1.11	LM-4(34) THRU LM-15(45) DVT(70) TM-5/R(65)		-34 H.D.	G.F. CHAIN 7-8-68		29-68

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS
A					

CHG APPROVED

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18356	A

SCALE NONE SHEET 1.11

ENG 77.16 3-66

01 NAS 9-1100

LDW280-18356 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	TM-5/R(65)	2
		LTA-3 (13)	2
		LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
		LM-4(34)	2
LM	LDW280-54575	DVT(70)	2
PART NO. LDW280-18356-23		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	TM-5/R(65)	4
		LM-15(45)	4
		LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
		LM-10(40)	4
		LM-9(39)	4
		LM-8(38)	4
		LM-7(37)	4
		LM-6(36)	4
		LM-5(35)	4
		LM-4(34)	4
LM	LDW280-54575	DVT(70)	4
PART NO. LDW280-18356-37		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	TM-5/R(65)	1 EA
		LTA-3 (13)	
		LM-15(45)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
LM	LDW280-54575	DVT(70)	1 EA
PART NO. LDW280-18356 -19, -33		GAEC SCH NO. 51-2	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET	1.01	1.11		
REV	A	A		
SHEET				
REV				

LAST SECT LTR USED		GRUMMAN REL INFO C A	
LAST DASH NO. USED	-37	PRIM NO. 207	JK(001) A 7/9/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 (CCA586)

CONTRACT NO.	NAS 9-1100
DRAWN BY	GARRAFFO 9/15/67
LAYOUT BY	F. MADDEN
CHECKED BY	D. FASS 9-15-67
GR LEADER	9/15/67
VEH DES INT	9/15
STRUCTURES	9/20
STRUCTURES	9/20
WEIGHTS	
PROJ ENGR	9/23
REL GROUP	9-22-67

LINE ITEM

DOCUMENTATION TYPE II

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE-SCIENTIFIC EQUIP.
SUPPORT UPPER

SIZE	CODE IDENT NO.		
B	26512	LDW280-18356	A
SCALE	NONE	SHEET 1.00 OF 6	

ENG 77.1 12-65

OK

CDR 9-20-67

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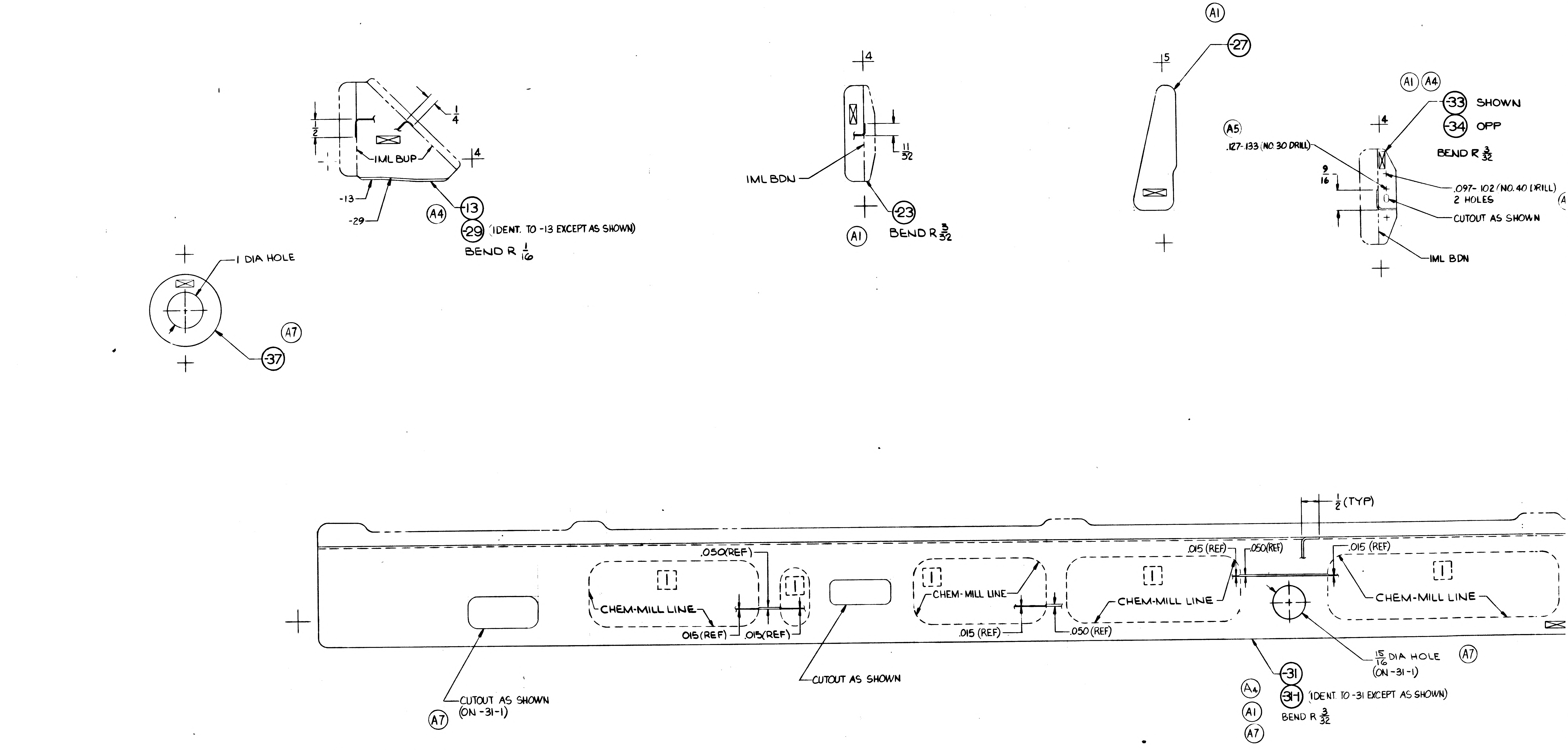
NAS 9-1100



A1
27
A1 A4
-33 SHOWN
-34 OPP
BEND R 3/32
1/4
1/2
IML BUP
-13
-29
A4
-13
-29 (IDENT. TO -13 EXCEPT AS SHOWN)
BEND R 1/16
4
IML BDN
11/32
-23
A1
BEND R 3/32
5
A5
.127-.133 (NO 30 DRILL)
9/16
.097-.102 (NO. 40 DRILL) 2 HOLES
CUTOUT AS SHOWN
IML BDN
1 DIA HOLE
A7
-37
1/2 (TYP)
.050(REF)
.015 (REF)
.050(REF)
.015 (REF)
CHEM-MILL LINE
.015(REF)
.015(REF)
CHEM-MILL LINE
.015 (REF)
CHEM-MILL LINE
.050 (REF)
CHEM-MILL LINE
15/16 DIA HOLE (ON -31-1)
A7
CUTOUT AS SHOWN
CUTOUT AS SHOWN (ON -31-1)
A7
-31
A4
-31 (IDENT. TO -31 EXCEPT AS SHOWN)
A1
BEND R 3/32
A7

01/02

NAS 9-1100

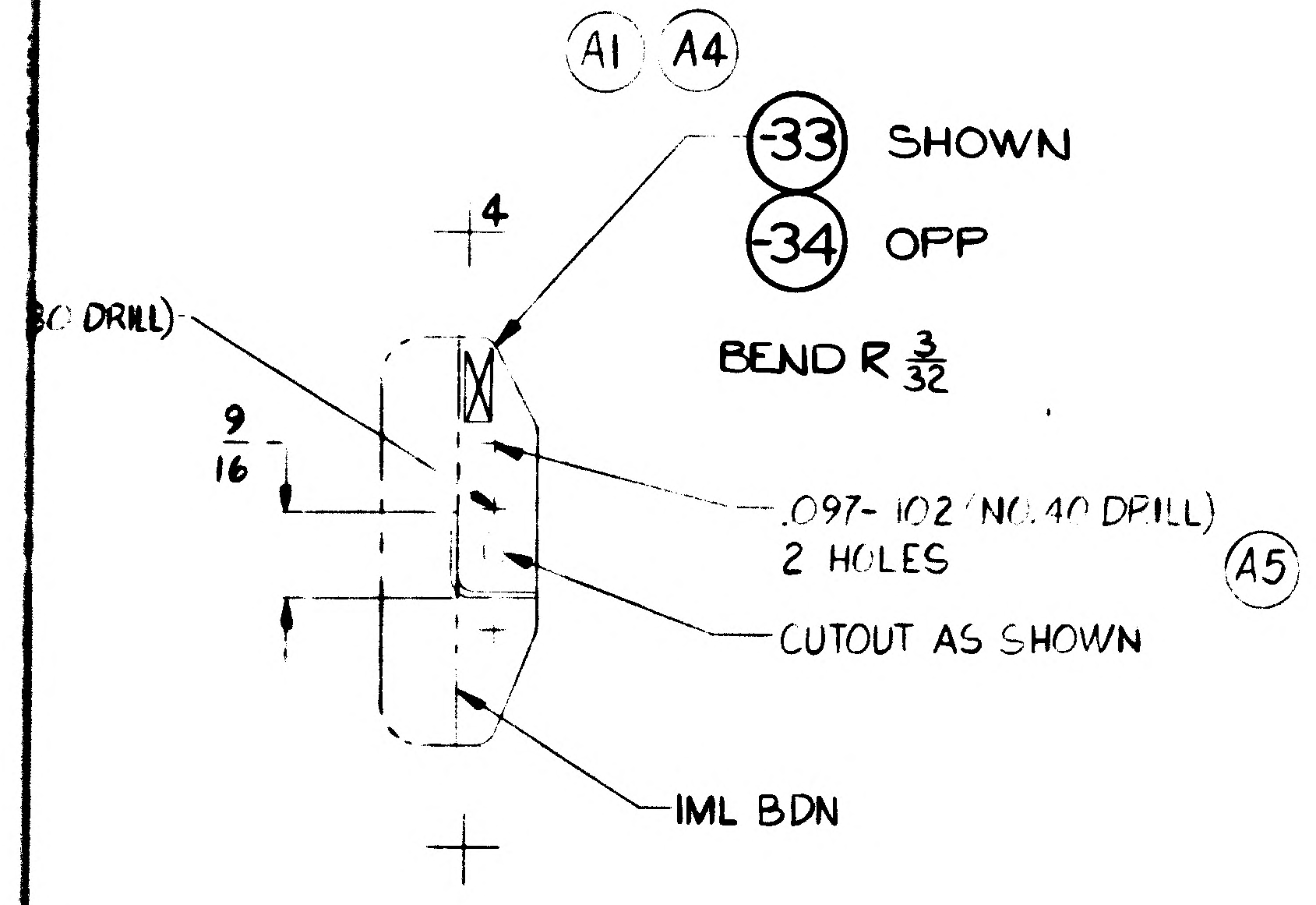
CODE IDENT NO. 26512

LDW280-18356

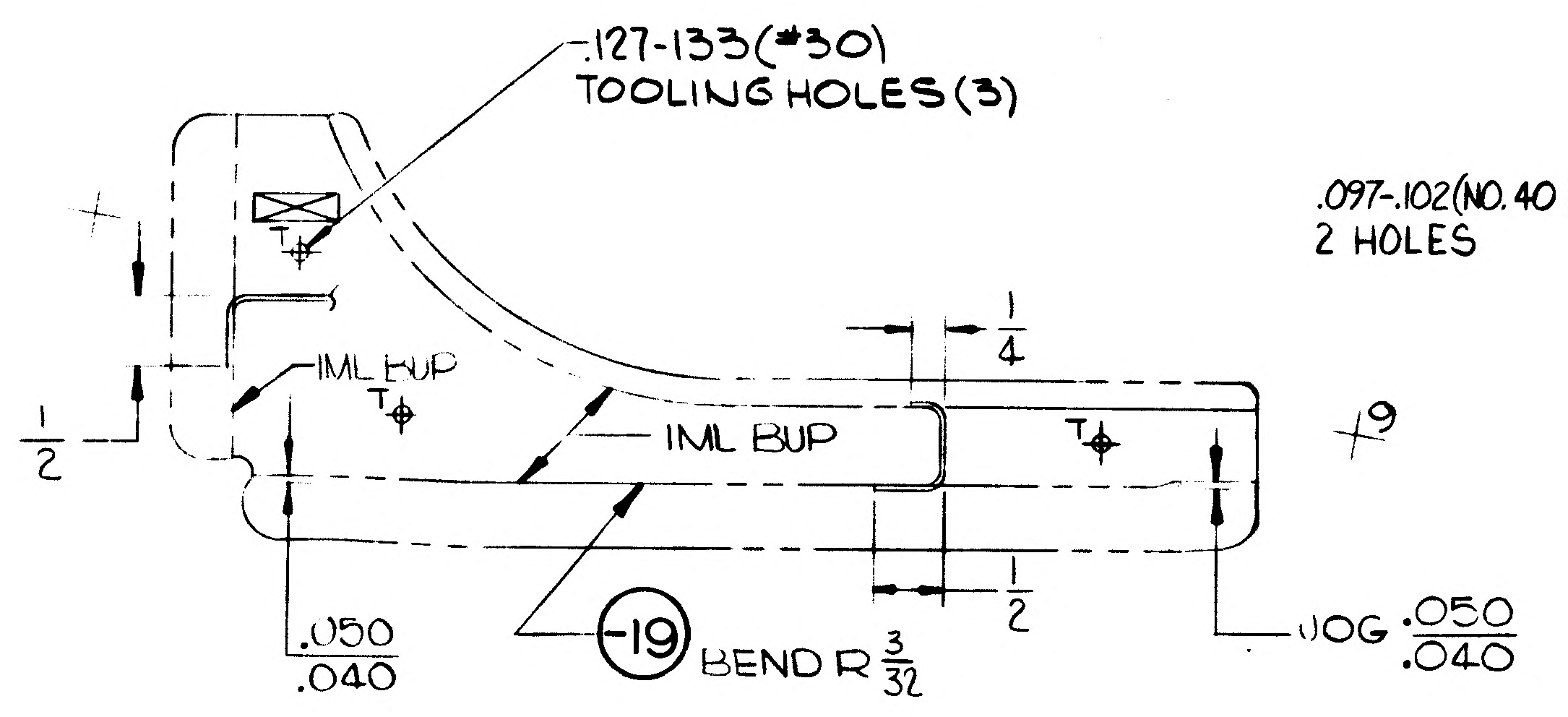
SH 3

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS EXCEPT AS NOTED.

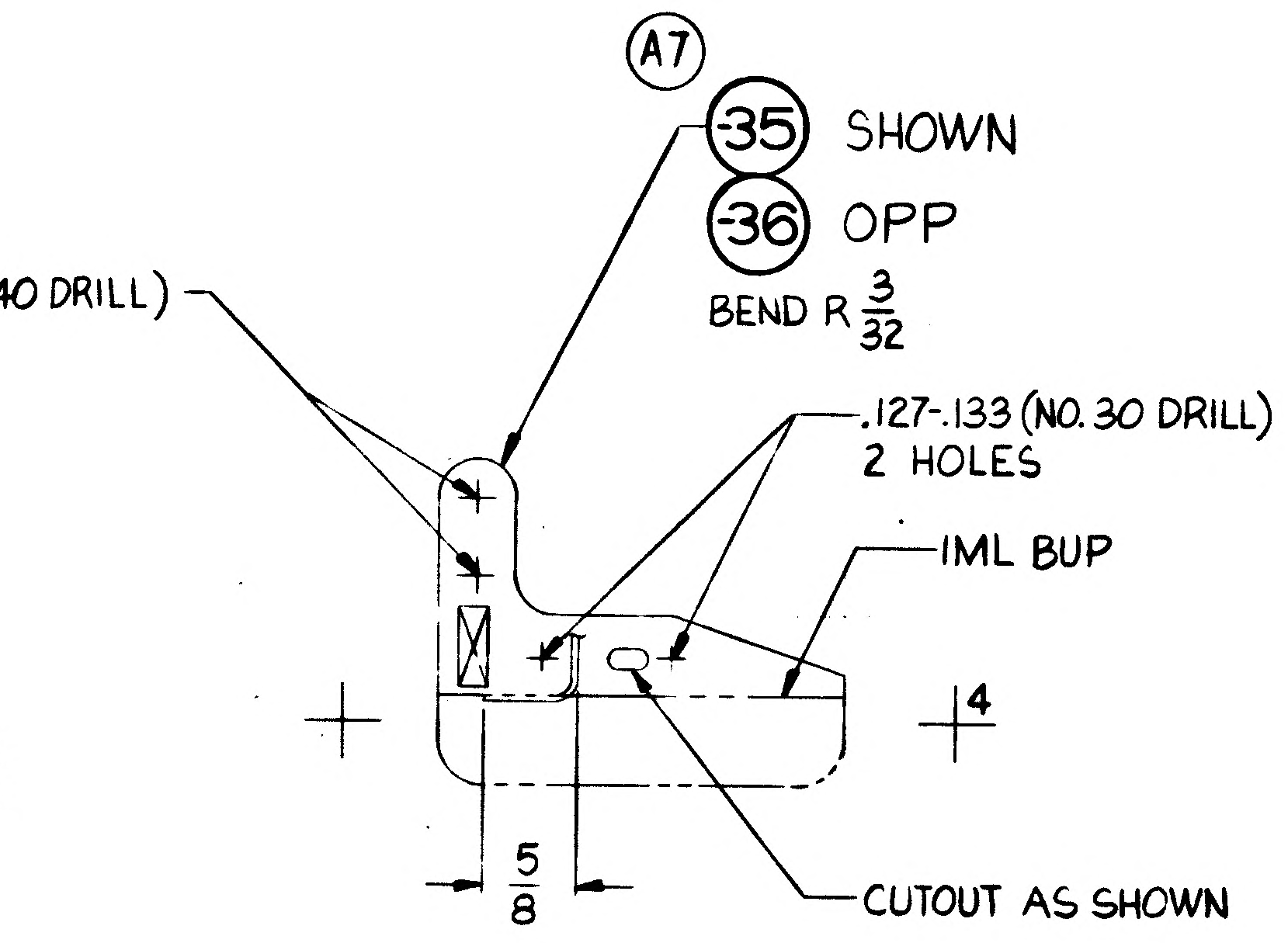


(A1) (A4)
-33 SHOWN
-34 OPP
BEND R 3/32
30 DRILL)
9/16
.097-.102 (NO.40 DRILL) 2 HOLES (A5)
CUTOUT AS SHOWN
IML BDN

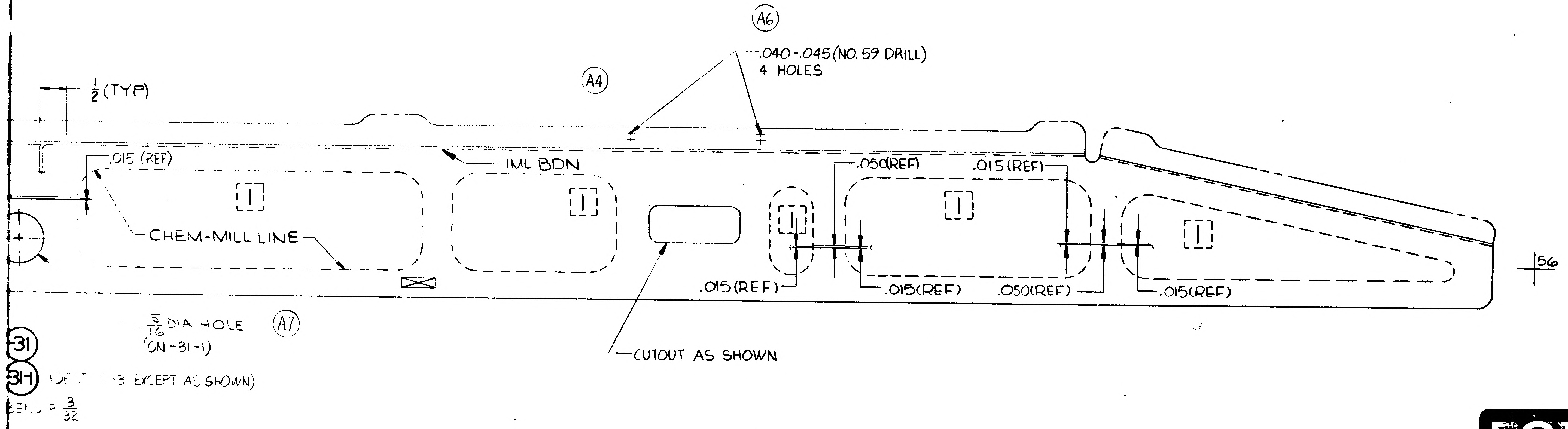


.127-.133(#30) TOOLING HOLES (3)
IML BUP
IML BUP
1/4
1/2
1/2
9
.050 .040
-19 BEND R 3/32
JOG .050/.040

.097-.102(NO.40 DRILL) 2 HOLES



(A7)
-35 SHOWN
-36 OPP
BEND R 3/32
.127-.133 (NO.30 DRILL) 2 HOLES
IML BUP
4
5/8
CUTOUT AS SHOWN



(A6)
.040-.045(NO.59 DRILL) 4 HOLES
(A4)
1/2 (TYP)
.015 (REF)
IML BDN
CHEM-MILL LINE
.050(REF)
.015 (REF)
.015(REF)
.015(REF)
.050(REF)
.015(REF)
56
CUTOUT AS SHOWN
5/16 DIA HOLE (ON -31-1) (A7)
-31
-31H (IDENT -3 EXCEPT AS SHOWN)
BEND R 3/32

LDW280-18356-31 & -31-1

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
I	.015 +.002 -.002	.035 REF

02/02 NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 28x88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (30x101) = 21.5 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 5.5 SQ. FT.

PRINT TRIM LINE

LDW280-18356 A

CODE IDENT NO. 26512
LDW280-18356 SH 3

LM	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
MODEL OR END ITEM	SIZE H	CODE IDENT NO. 26512	LDW280-18356	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

2FR

K2

ENG 73-6 6-64

							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18356-37	E	PLATE	AL ALY SH	QQ-A-250/12	7075-T6	.024 × 3 × 3	NONE	88	8C
								↑ -36	↑	ANGLE	↑	↑	7075	.040 × 3 × 4	T6	↑	3C
								-35		↑			↑	.040 × 3 × 4	↑		3C
								-34						.040X2X4	↓		4C
								-33						.040 × 2 × 4	T6		4C
								-31-1		↓				.050 × 4 × 58	T6/CM		5A
								-31		ANGLE			↓	.050 × 4 × 58	T6/CM		5A
								-29		BRACKET			7075	.028 × 4 × 4	T6		7C
								-27		PLATE			7075-T6	.063 × 2 × 4	NONE		5D
								-23		ANGLE			7075	.040 × 2 × 4	T6		6C
								↓ -19	↓	CHANNEL	↓	↓	7075	.040 × 4 × 9	T6	↓	4C
								LDW280-18356-13	E	BRACKET	AL ALY SH	QQ-A-250/12	7075	.028 × 4 × 4	T6	88	7C
QTY PER ASSEMBLY																	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	HEAT TREAT	MIL-H-6088
						CM	CHEM-MILL	LSP14-26100

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18356	A

A

SCALE NONE SHEET 2.00

ENG 77.2 7-56

01

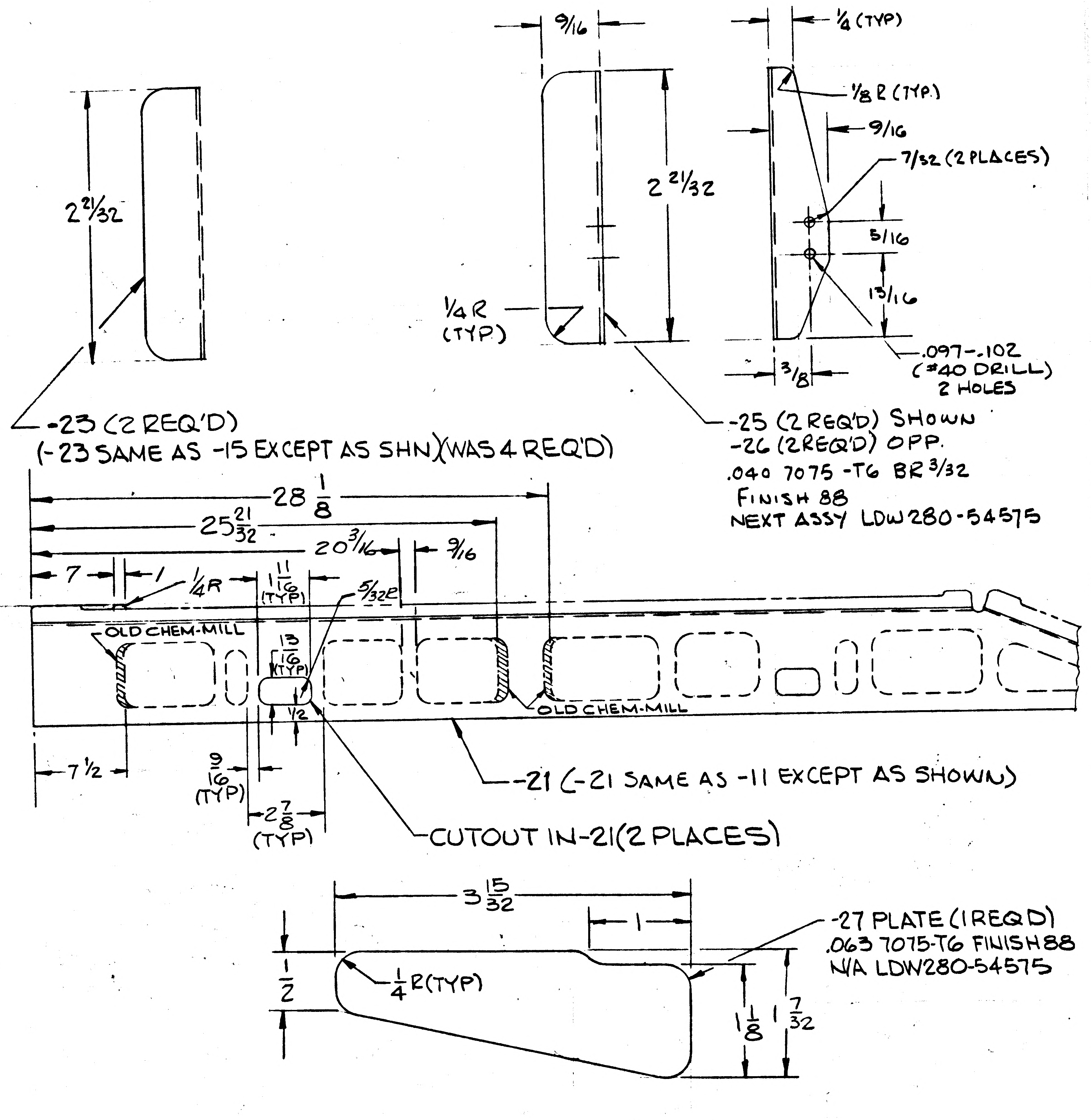
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18356	EO NO. A1
CONTROL INFO NO. LDW280A9598	

REMOVE LDW280-18356-17, -11 & -15
ADD -21 IDENTICAL TO -11 EXCEPT AS SHOWN
ADD - 23 IDENTICAL TO -15 EXCEPT AS SHOWN
CREATE -25, -26 & -27


9/16
1/4 (TYP)
1/8 R (TYP)
9/16
7/32 (2 PLACES)
2 21/32
2 21/32
5/16
13/16
1/4 R (TYP)
.097-.102 (#40 DRILL) 2 HOLES
3/8
-23 (2 REQ'D)
(-23 SAME AS -15 EXCEPT AS SHN)(WAS 4 REQ'D)
-25 (2 REQ'D) SHOWN
-26 (2 REQ'D) OPP.
.040 7075-T6 BR 3/32
FINISH 88
NEXT ASSY LDW280-54575
28 1/8
25 21/32
20 3/16
9/16
7
1
1/4 R
11/16 (TYP)
5/32 R
13/16 (TYP)
OLD CHEM-MILL
1/2
OLD CHEM-MILL
7 1/2
9/16 (TYP)
2 7/8 (TYP)
-21 (-21 SAME AS -11 EXCEPT AS SHOWN)
CUTOUT IN -21 (2 PLACES)
3 15/32
1
-27 PLATE (1 REQ D)
.063 7075-T6 FINISH 88
N/A LDW280-54575
1/2
1/4 R (TYP)
1 1/8
1 7/32

01
NAS 9-1100

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 CCA586

5

REASON FOR EO
ADDITIONAL STRUCTURE REQD FOR BOOM RETRACT

DESCRIPTION OF EO
ADDED -21, -23, -25, -26 & -27 REMOVED -11, -15 & -17

GAEC EO RELEASE: JK 10/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
LM	(THRU)	LM -15 (45)	
LM		DVT (70	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY								
✓			-11 -15 -17	DATE	10/13/67			10/26	10/26/67		10/11/67	10-24-67
				N	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: ANGLE ~ D/S ~ SCIENTIFIC EQUIP. SUPPORT UPPER
DRAWING NO. LDW280-18356
EO NO. A1

10/16
ISSUED BY F. MADDEN / G. YEE / J. STRAKOSCH SECTION VEH DES. INT GROUP NO. 335 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 783
CONTROL INFO NO. LDW280A9815

ADD LTA-3(13) EFFECTIVITY TO DASH NO.* OF THE FOLLOWING DWGS.:
QUANTITY SAME AS LM-4(34) THRU LM-15(45)

DWG. NO.	N/A	TITLE	CHG. NO.	DASH NO.*
LDW280-54510	LDW280-54509	SEE DWG.	E 1	-1
M17741	-54576		A2	-11, -13
M17743	-54576		A2	-13
M17744	-54576		A2	-13
M17745	-54576		A2	-11, -12, -13
M17770	-54576		A1	-11
-17883	-23578		B5	-15, -17
-17295	-54576		B4	-13-14-19, -20-21, -22, -23, -24, -25-26
-18342	-54576		A1	-11, -13, -15, -17
-17623	-54566		B6	-17, -19
-18343	-54576		A1	-11, -13, -15, -17, -19
-18344	-54576		A1	-11, -13, -15, -17, -19
M17746	-54576		A1	-11
M17747	-54576		A2	-11
M17628	-54576		B2	-1
-18348	-54577		A1	-11, -13, -14, -15, -17, -18, -19
-18349	-54575		A1	-11, -12, -13, -14, -15, -16, -17, -18
-18350	-23634		A1	-11, -12
M17748	-54575		A2	-13
-18369	-54586		A1	-11, -13, -15, -16, -17, -19
-18346	-54575		A1	-11, -13, -15
-18356	-54575		A2	-13-19, -21, -25, -26, -27
LDW280M17769	LDW280-54575	SEE DWG.	A1	-11

⑤

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 ok. CCA-586

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3 (13) EFFECTIVITY TO DASH NO.*

GAEC EO RELEASE: JK 11/1/67

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		

DRAWING CHANGE REQD: ✓ REVISE DWG, RECORD EO

DISPOSITION OF PARTS: ✓ REWORK, SCRAP

	D	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY									
DATE	10/23/67				10/20/67	10/23/67		10/26/67	11-1-67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LE0280

EO NO.: 783

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18356
EO NO. A3
CONTROL INFO NO. LDW 280B0473

FOR LDW 280-18356-27 REMOVE LM-4(34) THRU LM-15(45) & D.V.T. (70) REQMTS.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCP 1433 CCA 586

REASON FOR EO: THERMAL DOOR DRIVE SPT BRACKET REPLACES SPLICE PLATE.

DESCRIPTION OF EO: FOR-27 REMOVED LM-4(34) THRU LM-15(45) & D.V.T. (70) REQMTS.

GAEC EO RELEASE: 11/27/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45) &	
		D.V.T. (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	11/20/67			11-18-67	11/21/67		11/21/67	11/28/67
B	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~—~~

PRIORITY: C

DRAWING TITLE: ANGLE ~ D.S. ~ SEQ SUPPORT UPPER DECK.

DRAWING NO.: LDW 280-18356

EO NO.: A3

1-5-68
ISSUED BY G. HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 25

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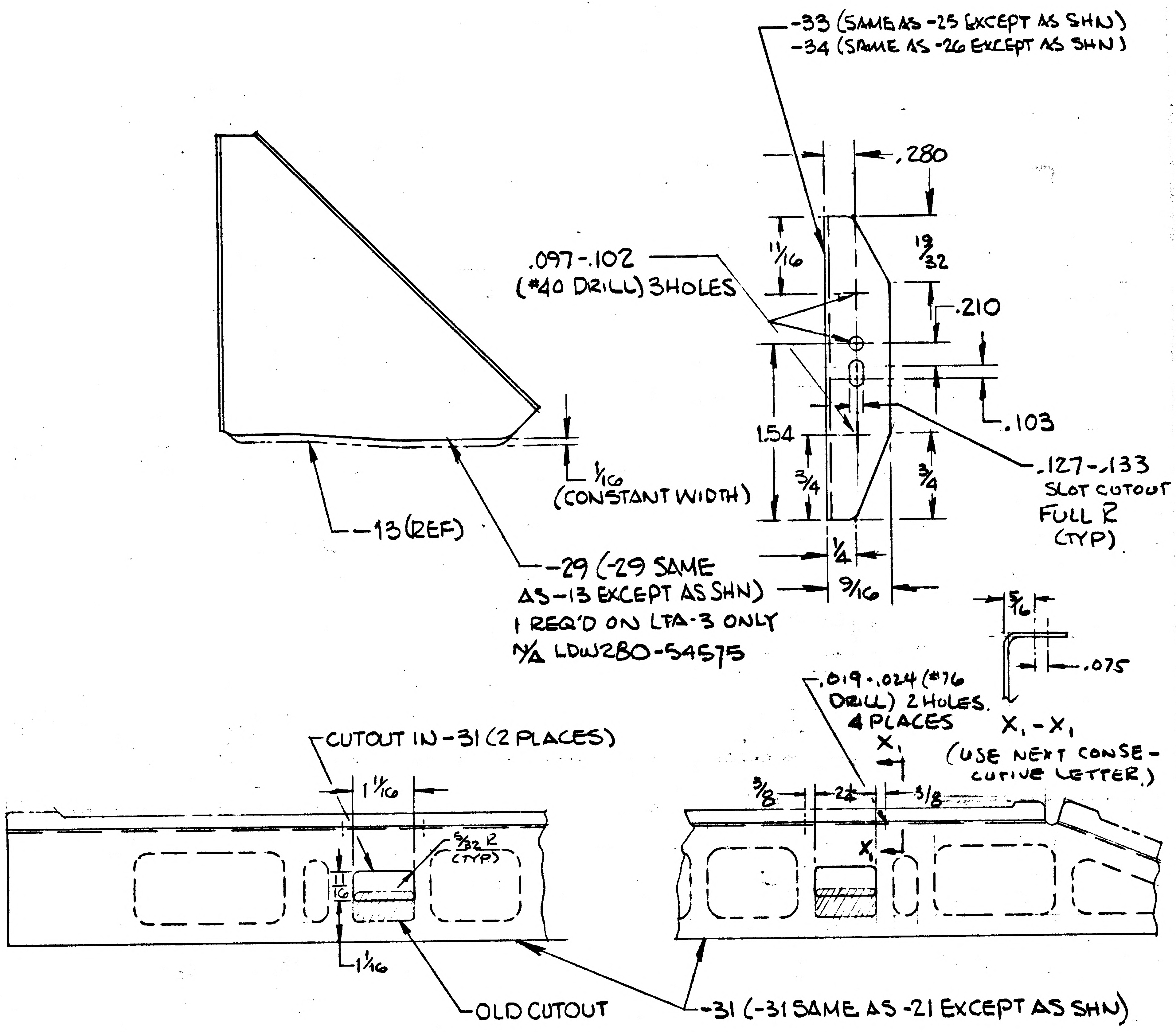
NAS 9-1100

A

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18356 | EO NO. A4
CONTROL INFO NO. LDW280A9721



-33 (SAME AS -25 EXCEPT AS SHN)
-34 (SAME AS -26 EXCEPT AS SHN)
.280
19/32
1/16
.097-.102
(#40 DRILL) 3 HOLES
.210
.103
1.54
3/4
3/4
.127-.133
SLOT CUTOUT
FULL R
(TYP)
1/4
9/16
1/16
(CONSTANT WIDTH)
-13 (REF)
-29 (-29 SAME AS -13 EXCEPT AS SHN)
1 REQ'D ON LTA-3 ONLY
N/A LDW280-54575
5/64
.075
.019-.024 (#76 DRILL) 2 HOLES
4 PLACES
X1
X1-X1
(USE NEXT CONSECUTIVE LETTER)
CUTOUT IN -31 (2 PLACES)
1 1/16
3/32 R (TYP)
11/16
1 1/16
3/8
2 1/4
3/8
X1
OLD CUTOUT
-31 (-31 SAME AS -21 EXCEPT AS SHN)

REMOVE LDW280-18356-14, 21, -25 & -26
ADD -33 & -34 IDENTICAL TO & REPLACE -25 & -26 RESPECTIVELY EXCEPT AS SHN
ADD -31 IDENTICAL TO & REPLACE -21 EXCEPT AS SHOWN
ADD -29 IDENTICAL TO -13 EXCEPT AS SHN.
REMOVE LM-4 (34) THRU LM-15 (45) & DV.T. (70) EFFECTIVITY FROM -13.
ADD LTA-3 (13) EFFECTIVITY TO -23 (N/A & QUANTITY SAME AS LM-4)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA586

(5)

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED -31, -33, -34 & -29. REMOVED -21, -25, -26 & -14
ADDED LTA-3 (13) EFFECTIVITY TO -23.
REMOVED LM-4 (34) THRU LM-15 (45) & DVT (70) EFF. FROM -13

GAEC EO RELEASE: JK 12/9/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (-13)	
LM		LM-4(34)-LM-15(45)	
LM		D.V.T. (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			-21, -26 -25, -14	DATE	12/4/67			12-2-67	12/8/67		12/4/67	12/?/67
REVISE DWG	RECORD EO	REWORK	SCRAP	B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: ANGLE ~ D/S SCIENTIFIC EQUIP. SUPPORT UPPER
DRAWING NO.: LDW280-18356
EO NO.: A4

12/8 X9505
ISSUED BY G. YEE / P. THORJUSEN SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01 NAS 9-1100

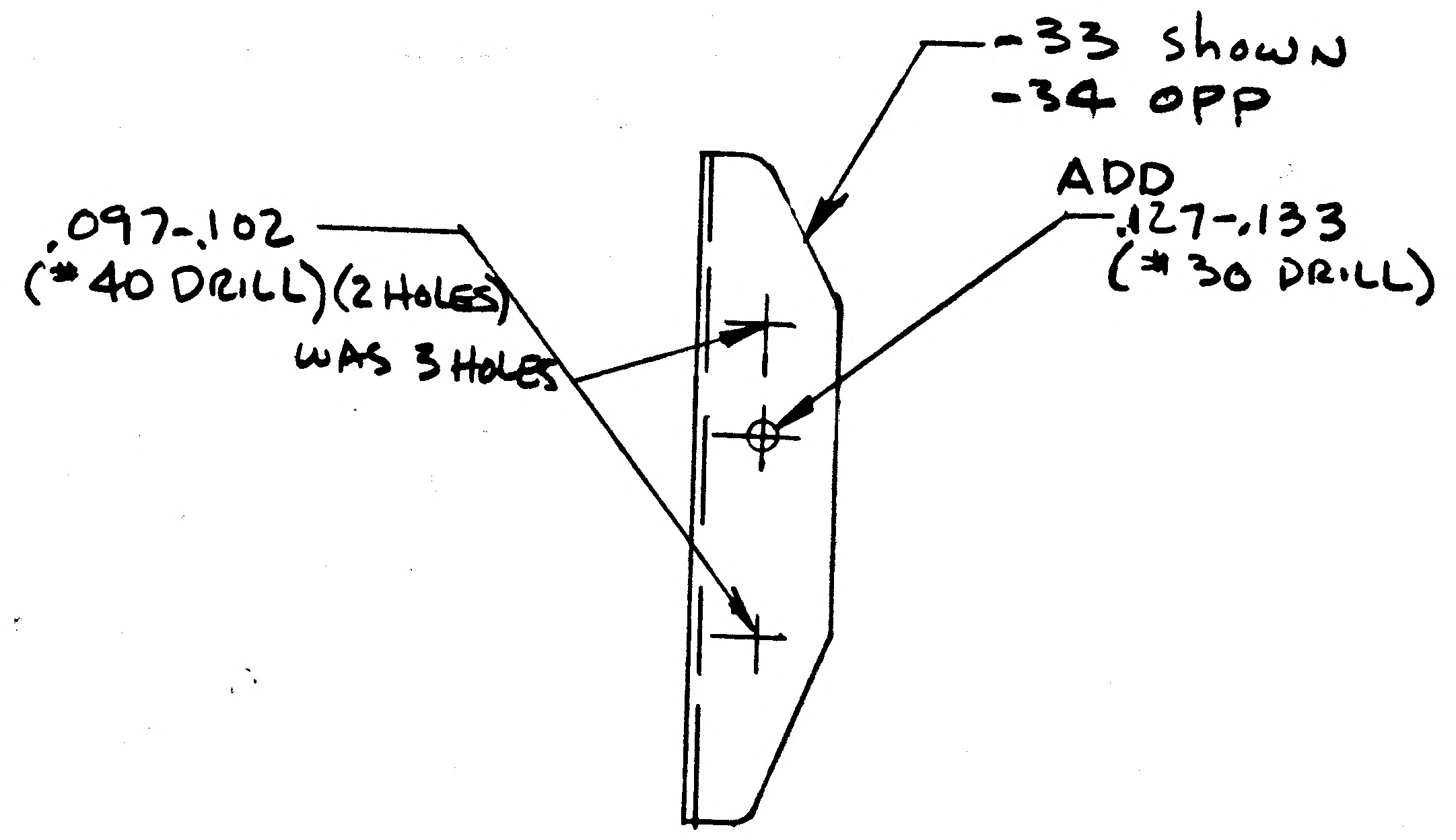
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18356		EO NO.	A5
CONTROL INFO NO. LDW280 30788			



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 (CCA586)

REASON FOR EO

CHANGE HOLE SIZE

DESCRIPTION OF EO

ON-33&-34 .127-.133 DIA HOLE

WAS .097-.102 DIA HOLE (1)

GAEC EO RELEASE: C JK 12/16/67

5

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
LM		LM-4 (34) — LM-15 (45)	
LM		D.V.T. (70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	—

APPROVED BY								
DATE	12/13/67			12-13-67	12/14/67		12/13/67	12/16-67
D	UDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT.~~

PRIORITY: C

DRAWING TITLE: ANGLE-D/S SCIENTIFIC EQUIP. SUPPORT-UPPER

DRAWING NO.: LDW280-18356

EO NO.: A5

12/15/67 X9505

ISSUED BY G.YEE / P THORJUSEN

SECTION VEH DES. INT

GROUP NO. 335

PL 25

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NAS 9-1100

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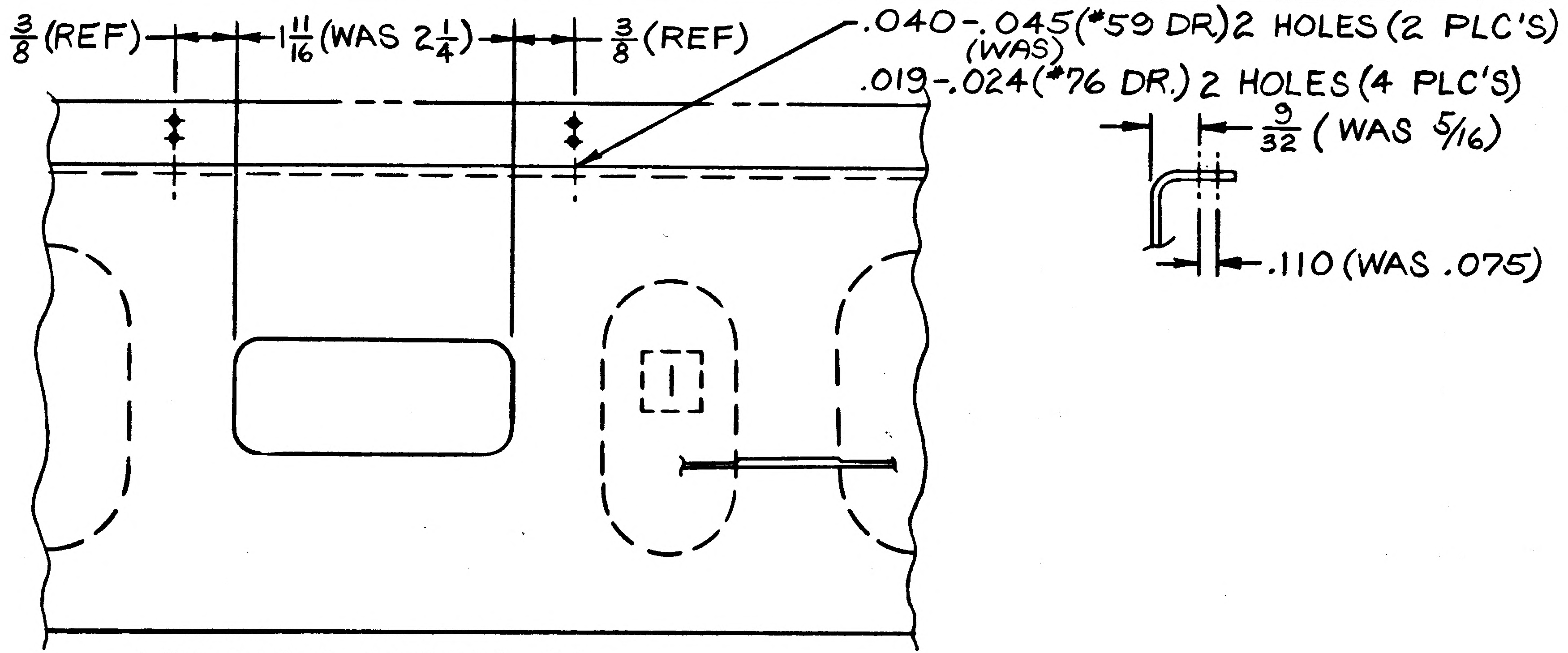
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18356		EO NO. A6
CONTROL INFO NO.	LM-2-4302	



3/8 (REF)
1 11/16 (WAS 2 1/4)
3/8 (REF)
.040-.045 (#59 DR) 2 HOLES (2 PLC'S)
(WAS)
.019-.024 (#76 DR.) 2 HOLES (4 PLC'S)
9/32 (WAS 5/16)
.110 (WAS .075)

LDW280-18356-31

THIS IS A REVISION OF EO-A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA586 (2)

REASON FOR EO: ALSEP REQUIREMENT INCORRECT DIMENSIONING (PARTS NOT MADE)

DESCRIPTION OF EO: REFERENCE EO-A4 FOR -31, 1 1/16 WAS 2 1/4 ; .110 WAS .075 ; 9/32 WAS 5/16 & .040-.045 (#59 DR) 2 HOLE (2 PLC'S) WAS .019-.024 (#76 DR) 2 HOLES (4 PLC'S)

GAEC EO RELEASE ✓

02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D (13) LM-4 (34) THRU LM-15 (45) DVT (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				—				
DATE	12/1/67			—	12/15/67	12/14/67	12/21/67	12-18-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE~DESCENT STAGE SCIENTIFIC EQUIP. SUPPORT~UPPER	LDW280-18356	A6

ISSUED BY LIAISON J. MALONEY 12/14/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

01

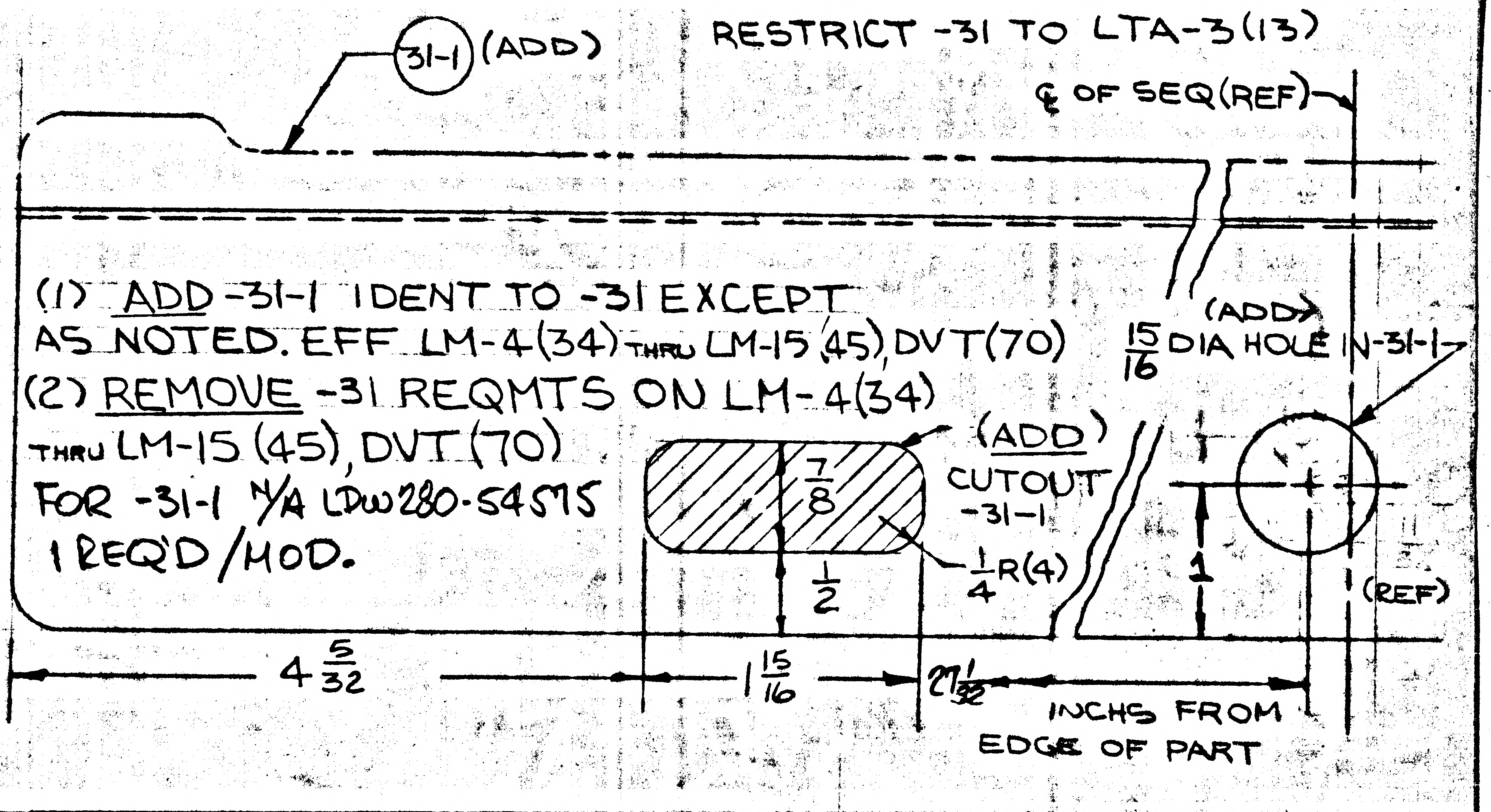
NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18356	EO NO.	A7
CONTROL INFO NO.	LDW280B2497		

RESTRICT -31 TO LTA-3(13)


31-1 (ADD)
℄ OF SEQ (REF)
(ADD)
15/16 DIA HOLE IN -31-1
(ADD)
CUTOUT
-31-1
7/8
1/2
1/4 R(4)
1
(REF)
4 5/32
1 15/16
27 1/32
INCHS FROM
EDGE OF PART

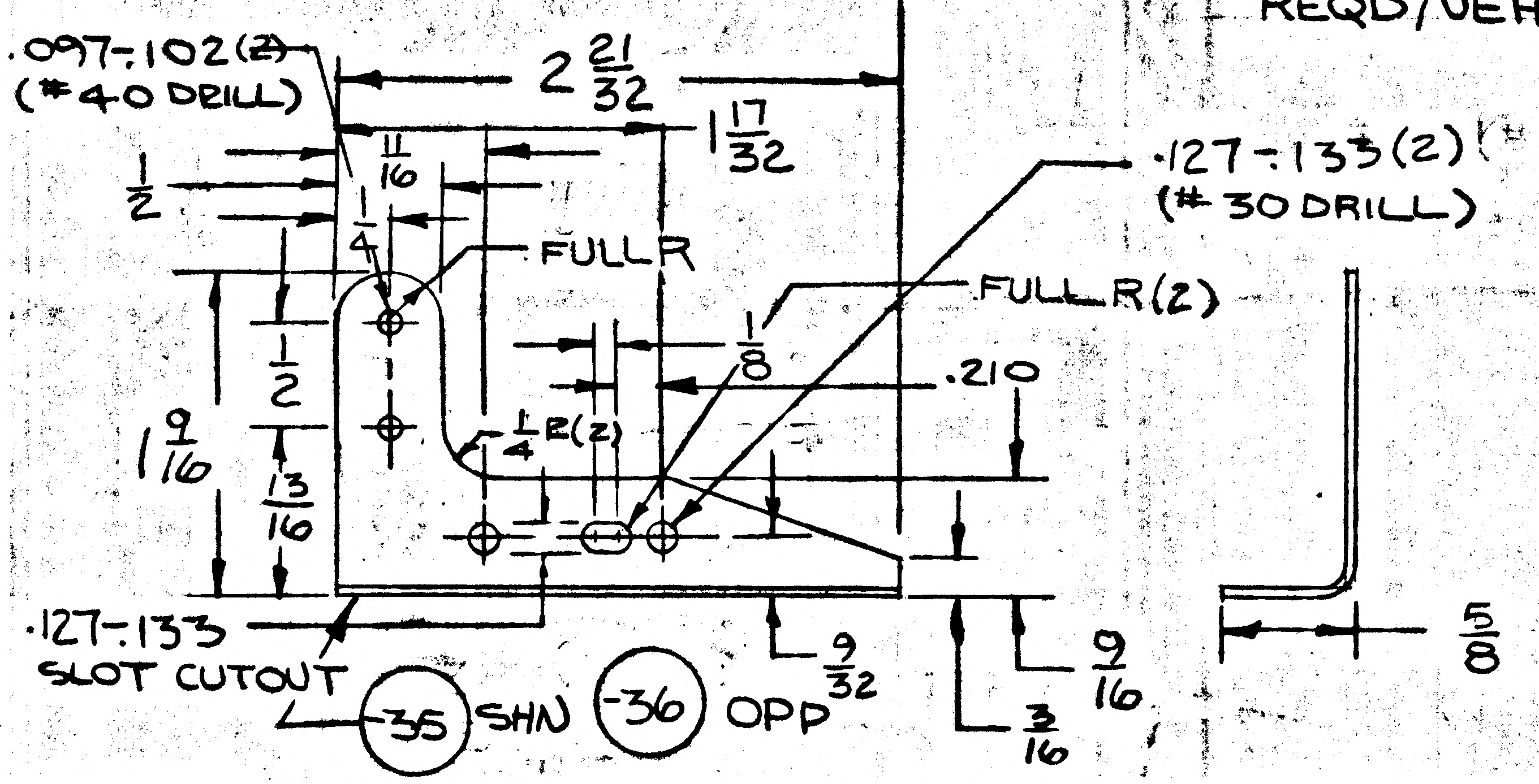
(1) ADD -31-1 IDENT TO -31 EXCEPT AS NOTED. EFF LM-4(34) THRU LM-15(45), DVT(70)

(2) REMOVE -31 REQMTS ON LM-4(34) THRU LM-15(45), DVT(70)

FOR -31-1 N/A LDW280-54575
1 REQ'D/MOD.

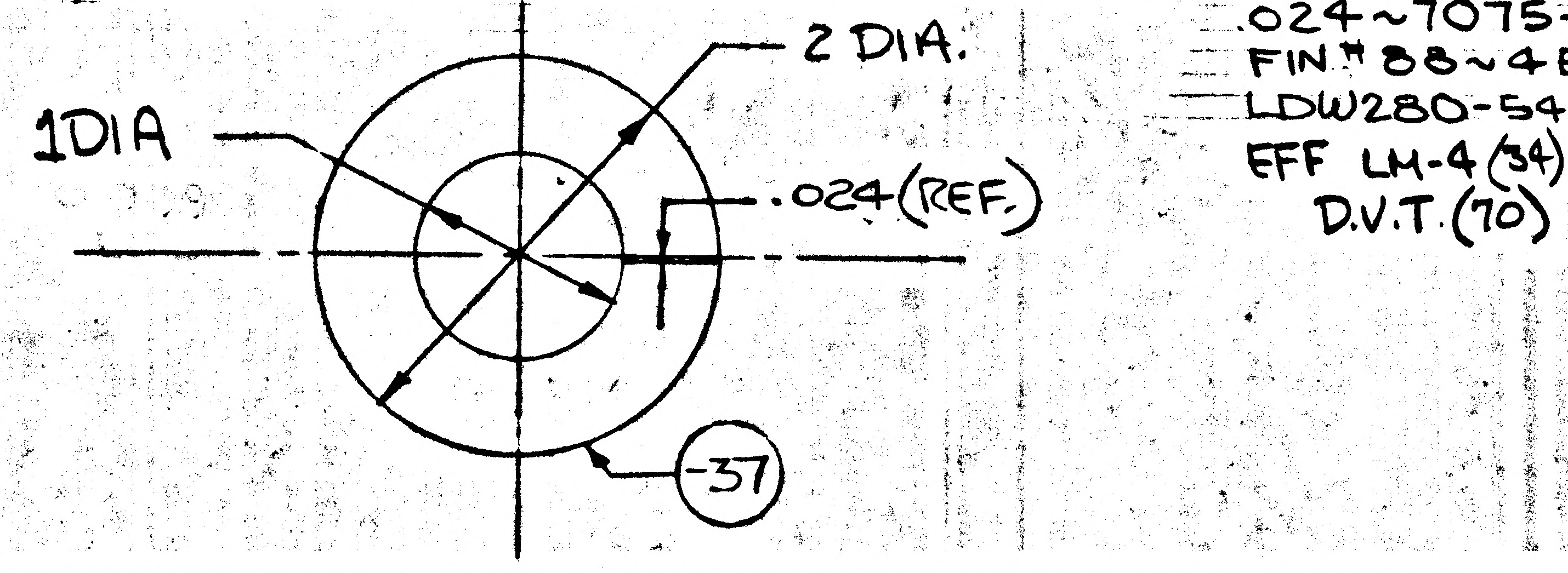
ADD -35 & -36, EFF LM-4(34) THRU LM-15(45)
DVT(70). ON -33 & -34 1 EA REQD (WAS:)
2 EA REQD

LDW280-18356-35 (SHN), -36 (OPP)
.040 ~ 7075 AL ALLOY SHT ~ BR 3/32 ~
FIN # 88 ~ HEAT TREAT T-6 ~ 1 EA
REQD/VEH ~ N/A LDW280-54575


.097-.102(2)
(#40 DRILL)
2 21/32
1 17/32
11/16
1/2
1/4
FULL R
.127-.133(2)
(#30 DRILL)
FULL R(2)
1/8
.210
1/2
1/4 R(2)
1 9/16
13/16
.127-.133
SLOT CUTOUT
-35 SHN
-36 OPP
9/32
9/16
3/16
5/8

ADD -37, EFF LM-4(34) THRU LM-15(45), DVT(70)

LDW280-18356-37
.024 ~ 7075-T6 AL ALLOY SHT ~
FIN # 88 ~ 4 EA REQD/VEH ~ N/A
LDW280-54575
EFF LM-4(34) THRU LM-15(45) &
D.V.T.(70)


2 DIA.
1DIA
.024 (REF.)
-37

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA 586 PKG 13		(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADD PROVISIONS FOR SEQ BAY DOOR CABLE RUNS	ADDED -31-1, -35, -36, -37. ON -31 REMOVED LM-4(34) THRU LM-15(45), DVT(70). FOR -33 & -34 1 EA REQD/MOD (WAS) 2 EA REQD/MOD.	H.F. 3/13/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45)	
LM		DVT(70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓	-25 -26	APPROVED BY								
				DATE	3/11/68			3/11/68	3/12/68		3/12/68	3/13/68
REVISE DWG	RECORD EO	REWORK	SCRAP	G	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GSE~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLES ~ SCIENTIFIC EQUIP SUPPORT ~ UPPER	LDW280-18356	A7

3-8-68
ISSUED BY BELEV/HANSMANN SECTION VEH DES INT GROUP N 335 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LEO 280	EO NO.	969
CONTROL INFO NO.	LDW280B3375		

FOR THE FOLLOWING PARTS ADD TM 5/R(65) REQUIREMENTS, N/A LDW280-54575 FOR THE QUANTITIES NOTED

DWG NO *	TITLE	QUANT REQD	CHANGE NO
LDW280-17712-13	SEE DWG	1	A7 ✓
-14		1	
-21		1	
-17712-22		1	
-17714-11		2	C6 ✓
-13		2	
-19		4	
-21		8	
-23		2	
-25		2	
-27		2	
-17714-29		2	
-17442-11		1	B4 ✓
-17442-13		1	
-18346-11		1	A2 ✓
-18346-13		3	
-18346-15		1	
-18356-13		1	A8 ✓
-19		1	
-31-1		1	
-23		2	
-33		1	
-34		1	
-35		1	
-36		1	
-18356-37		4	
-17294-23		1	B6
-17294-27		1	
-18370-17		1	A3
-19		1	
-21		1	
LDW280-18370-22	SEE DWG	1	

DWG NO. *	TITLE	QUANT REQD	CHANGE NO.
	SEE DWG		
LDW280-18322-11		1	A3
-12		1	
-13		1	
-18372-14		1	
-18487-11		1	A1
-18379-15-1		1	A5
M17266-3		1	C6
M17266-4		1	
M17629-1		1	B5
M17640-1		1	B8
M17640-2		1	
M17748-13		1	A4
M17766-11		1	A3
M17769-11		1	A2
M17952-11		1	A1
M17806-11		1	A2
-18349-13-1		1	A8
-14-1		1	
-15		1	
-16		1	
-23		1	
-24		1	
-27		1	
-28		1	
-29		1	
LDW280-18349-30	SEE DWG	1	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3075 CCA 586 PKG 2U (5)
REASON FOR EO	ADD TM-5/R(65) REQMTS.	DESCRIPTION OF EO	ON-(*) ADDED TM-5/R(65) REQMTS	GAEC EO RELEASE	K 5/23/68	

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS
LM		TM-5/R(65)		✓ REVISE DWG / RECORD EO	NOT REQ'D (REWORK / SCRAP)

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE 5/13/68				5-13-68			5/13/68	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	969

5-17-68
ISSUED BY T. COTTER x 3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18356	EO NO. A9
CONTROL INFO NO. LDW280B3843	

FOR -34
1 REQD\VEH (WAS 2 REQD\VEH), N/A LDW280-54575,
EFF LM-4(34) THRU LM-15(45), DUT(70), TM-5/R(65)

LCD 3075 CCA 586 PKG 24,
LCD 1433 CCA 586 PKG 13 ✓ (5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
STIFFEN SEQ BAY UPR DECK	FOR -34 1 REQD\VEH (WAS 2 REQD\VEH)	JK 6/12/68

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS	
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP
LM		LM-4(34) THRU		✓			✓
		LM-15(45), DUT(70)					
LM		TM-5/R(65)					

APPROVED BY									
DATE	6/10/68			6/10	[illegible]		6/11/68	6-11-68
G	UDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE ~DS~ SEQ ~ SPT UPR	LDW280-18356	A9

ISSUED BY 6-15-68 6-14-68 G. BELEU / J. LANG SECTION UDI GROUP NO. 335 PL 25

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NAS 9-1100

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18356 | EO NO. A10
CONTROL INFO NO. LM-2-4801

"THIS E.O. REVISES E.O. A9"

S/B:
REMOVE: -34,
EFF. ~ LM-4(34) THRU LM-15(45), DVT(70) & TM-5/R (65).

(WAS) FOR -34
1 REQ'D./VEH. (WAS 2 REQ'D./VEH.), N/A LDW280-54575 ~ EFF. ~ LM-4(34) THRU LM-15(45), DVT(70) & TM-5/R(65).

LCD 1433 CCA 586 PKG# 13
LCD 3075 CCA586

(2)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO CORRECT EO A9 WHICH DUPLICATED A CHANGE ACCOMPLISHED, BY EO A7 & TO REMOVE -34 REQMTS

DESCRIPTION OF EO: REF. EO A9
S/B REMOVED: -34,
(WAS) FOR-34, 1REQ'D/VEH. (WAS 2 REQ'D./VEH.)

GAEC EO RELEASE: SK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	
LM		LM-4(34) THRU LM-15(45) & DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP -34

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	6-20-68	7/13/68				6/21/68	6/20/68	7/13/68	7-3-68

PRIORITY: C
DRAWING TITLE: ANGLE ~ D/S ~ SCIENTIFIC EQUIP. SUPPORT UPPER
DRAWING NO. LDW280-18356
EO NO. A10

ISSUED BY LIAISON CMGreen x3605 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1360
CONTROL INFO NO. LDW28UB7428

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18344 ✓	A4	SEE DWG.
-18346 ✓	A4	
-18348 ✓	A3	
-18349 ✓	A9	
-18350 ✓	A5	
-18351 ✓	A3	
-18352 ✓	B1	
-18353 ✓	B1	
-18355 ✓	B1	
LDW280 -18356 ✓	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG54 PG4	CCA1821	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LM-15(45) NO LONGER REQD	DELETED LM-15(45) EFF FROM -*	4/18/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	VDI							
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/8/69

PRIORITY C | DRAWING TITLE SEE DWG | DRAWING NO. LEO 280 | EO NO. 1360

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] NO. LEO 280 | EO NO. 1566
CONTROL INFO NO. LDW280B 8112

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18353	SEE DWG	B2
355		B2
✓ 356		B2
358		A2
359		A2
360		A2
361		A2
362		B2
363		A3
LDW280-18364	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 31 & 32 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

(R) GAEC EO RELEASE: SWB 8-13-69; JK 8/18/69; Baumann 8-16-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY					N		
DATE	7-29-69			7/29/69	8/2/69		8/4/69
	VDI						

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1566

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
E..GINEERING ORDER

DWG. NO. LEO280
EO NO. 1647
CONTROL INFO NO. LDW280B - 8453

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
✓	LDW280 - 17712	SEE DRAWING	LDW280-54575	B3
✓	17714		-54575	D4
✓	17442		-54575	B7
✓	18346		-54575	A6
✓	18356		-54575	B3
	17294		-54575	C3
	18370		~~-23578~~ -54575	A6
	18372		-54575	A6
	18349		-54575	B2
	18379		-54575	A8

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 70 PG 9

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

(5)

GAEC EO RELEASE: SB 8-29-69; JK 8/28/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3 DR/1 (460)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT AFF'D — REWORK / SCRAP

APPROVED BY	DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
	8-8-69	VDI			8/6/69	8/6/69		8/6/69 8/28/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LE0280	1647

8-27-69
ISSUED BY F. Olivieri EXT 86098 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54839	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
	LDW280-54839	LM-6(36)	1 EA
	LDW280-54838	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
LM	LDW280-54838	LM-6(36)	1 EA

PART NO. LDW280-18358-11-13-15&-17 (CONTINUED) | GAEC SCH NO.

LDW280-18358

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54643	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
	LDW280-54643	LM-6(36)	1 EA
	LDW280-54832	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
LM	LDW280-54832	LM-6(36)	1 EA

PART NO. LDW280-18358-11-13-15&-17 | GAEC SCH NO.

WORK PACKAGE FUNCTION #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: A
LAST DASH NO. USED: -17
GRUMMAN REL INFO: PRIM NO. 207 | VC(001) MP-16 4/5/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°
P ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2008
ok

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY W.CONROY 3-25-68
LAYOUT BY J.CORTELYOU 4-1
CHECKED BY 3-27-68
GRP LEADER 4-1-68
VEH DES INT 4/2/68
STRUCTURE 4/3/68
STRUCTURE F.B. 4/3/68
WEIGHTS
RELIABILITY
PROJ ENGR 4/5/68
REL GROUP L. March 4-5-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD
DESCENT STAGE PROPELLANT TANK COVER
METEOROID PROTECTION

SIZE B | CODE IDENT NO. 26512 | LDW280-18358
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 4-5-68

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18358-17	E		ANGLE	AL ALLOY SH	QQ-A-250/4	2024	.016 x 7 x 21	T42	NONE	1A
	-15			SHIELD			2024-T81	.004 x 11 x 26	NONE	NONE	3A
	-13			RING				.004 x 17 x 26	NONE	NONE	5A
	LDW280-18358-11	E		SHIELD	AL ALLOY SH	QQ-A-250/4	2024-T81	.004 x 17 x 26	NONE	NONE	5A

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T42	HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18358

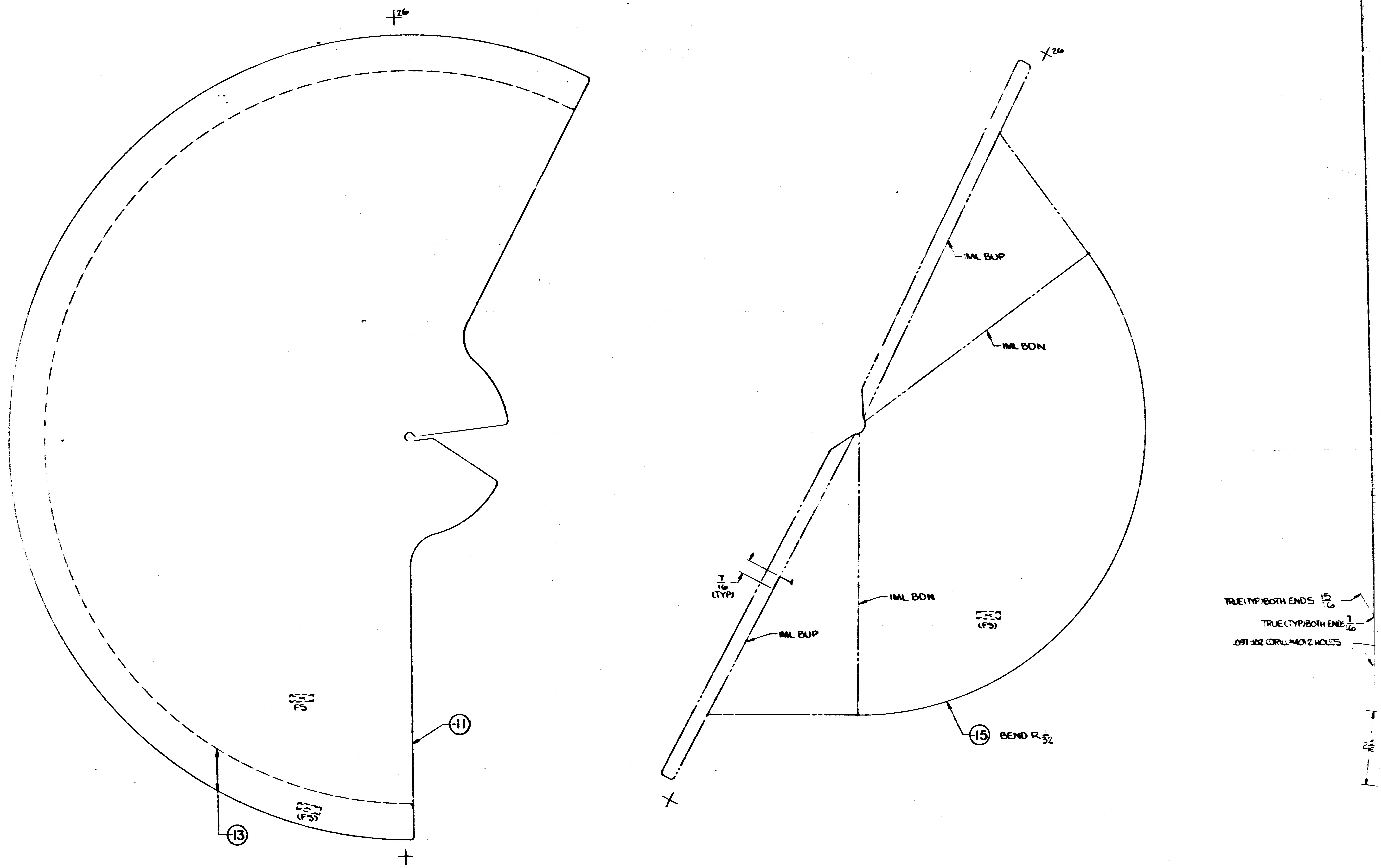
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100


26
X26
IML BUP
IML BDN
IML BDN
IML BUP
7/16 (TYP)
(FS)
FS
(FS)
-11
-13
-15 BEND R 1/32
TRUE (TYP) BOTH ENDS 15/16
TRUE (TYP) BOTH ENDS 7/16
.097-.102 (DRILL #40) 2 HOLES

01/02

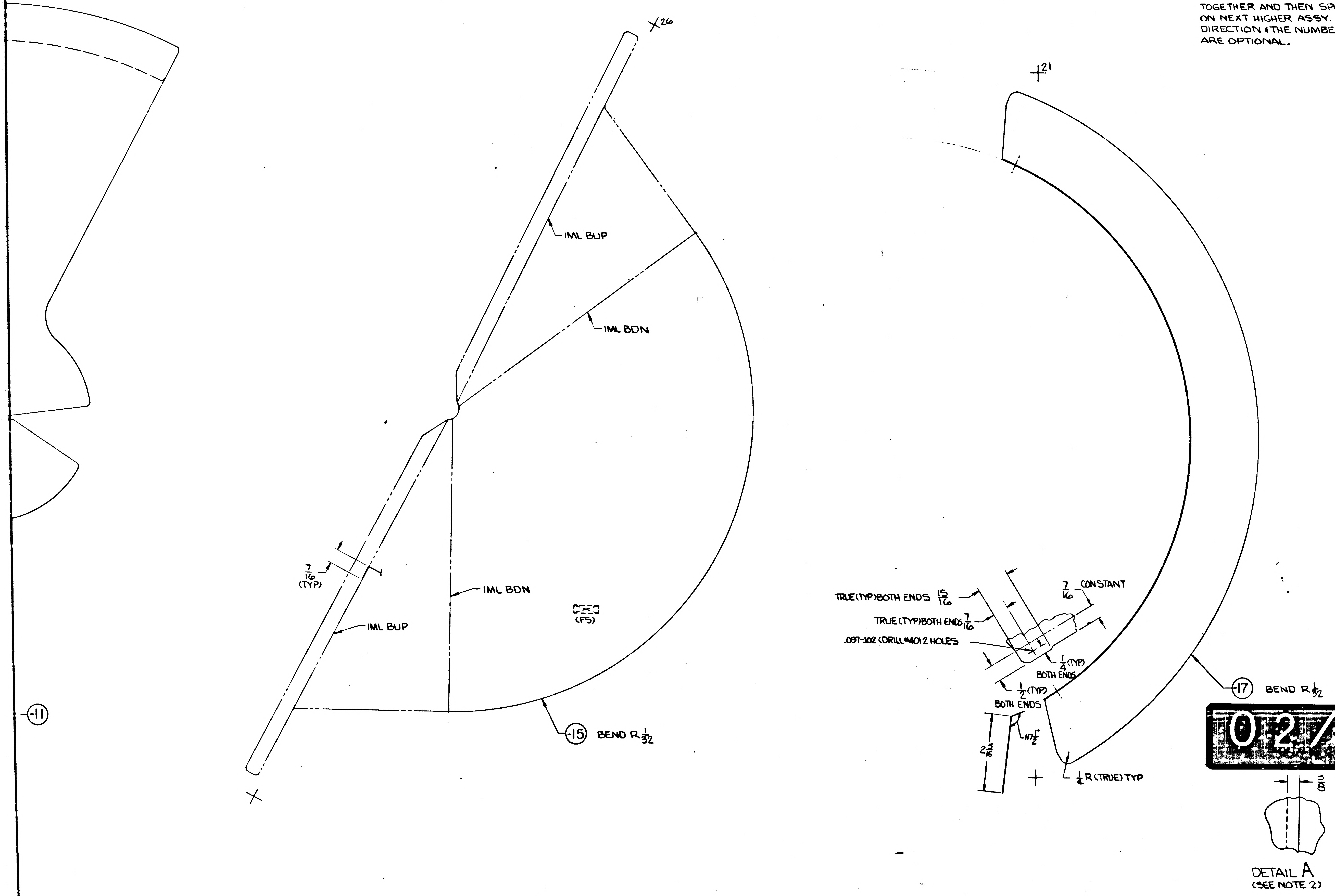
NAS 9-1100

CODE IDENT NO	DWG NO	SHEET
26512	LDW280-18358	3

FRAME 1 ← FRAME → 2

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. IF -11, 13 & -15 ARE LARGER THAN THE BASIC STOCK SIZE OF THE ORIGINAL MATERIAL SHEETS MAY BE SPLICED AS SHOWN IN DETAIL "A". SHEETS ARE TO BE TAPED TOGETHER AND THEN SPOTWELDED ON NEXT HIGHER ASSY. LOCATION DIRECTION & THE NUMBER OF SPLICES ARE OPTIONAL.

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓


X26
IML BUP
IML BDN
7/16 (TYP)
IML BDN
IML BUP
(FS)
-11
-15 BEND R 1/32
+21
TRUE (TYP) BOTH ENDS 15/16
TRUE (TYP) BOTH ENDS 7/16
.097-.102 (DRILL #40) 2 HOLES
7/16 CONSTANT
1/4 (TYP) BOTH ENDS
1/2 (TYP) BOTH ENDS
2 5/16
117 1/2°
1/4 R (TRUE) TYP
-17 BEND R 1/32
3/8
DETAIL A
(SEE NOTE 2)

02/02 NAS 9-1100

DWG SIZE 34x66
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 x 74) = 18.5 SQ FT

LDW280-18358

LDW280-18358

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18358	3

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
J	26512	LDW280-18358
SCALE FULL		SHEET 3.00

K2

FOR PHOTO REPRODUCTION 2F

LDW280-18358 SH 3

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[illegible] LEO 280		EO NO. 1566
CONTROL INFO NO. LDW280B 8112		

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10~~ (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18353	SEE DWG	B2
✓ 355		B2
✓ 356		B2
✓ 358		A2
359		A2
360		A2
361		A2
362		B2
363		A3
LDW280-18364	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 31 & 32 (5)

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQMTS	8-23-69 JK 8/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
				✓		NOT REQ'D		DATE	7-29-69			7/27/69	N 8/12/69		8/14/69
LM		LTA-11 ([redacted]) (23)		REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

Bauman 8-16-69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1566

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01
NAS 9-1100

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1733
CONTROL INFO NO. LDW 280B9167

FOR THE DRAWINGS LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS.*
*APPLICABLE DASH NO.

DRAWING NUMBER *	NEXT ASSY	DWG. TITLE	CHG. LTR
LDW280-54838-1	LDW280-28835	SEE DWG	A2
-54839-1	-28835		A2
-18358-11,-13,-15 & -17 -18358-11,-13,-15, & -17 -18358-11,-13,-15 & -17 -18358-11,-13,-15 & -17	-54643 -54832 -54838 -54839		A3
-18359-11 & -19 -18359-15 & -19 -18359-17 & -19 -18359-13 & -19	-54832 -54838 -54839 -54643		A3
-18360-11,-12, & -13 -18360-11,-12 & -19 -18360-11,-12 & -15 -18360-11,-12 & -17	-54643 -54832 -54838 -54839		A3
-18361-13 & -15 -18361-11 -18361-13 & -15 -18361-17	-54643 -54832 -54838 -54839		A3
-51823-3 & -4	-54508		A4
LDW280-18118-13 & -14	LDW280-51823	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG59 CCA2205 (5)

REASON FOR EO: LMMP REDESIGN. 3 TANK EXPANSION

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF. FROM - *

GAEC EO RELEASE: JK 10/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	—			10-20-69	10/21/69		10/22/69	10/22/69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LE0280
EO NO.: 1733

CDR 10-24

ISSUED BY D SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54839	LM-15(45)	8
		THRU	
LM	LDW 280-54839	LM-6 (36)	8
LM	LDW 280-54838	LM-15(45)	8
		THRU	
LM	LDW280-54838	LM-6 (36)	8
LM	LDW280-54. 13	LM-15 (45)	8
		THRU	
LM	LDW280-54643	LM-6 (36)	8
LM	LDW280-54832	LM 15(45)	8
		THRU	
LM	LDW280-54832	LM-6 (36)	8

PART NO. LDW280-18359-19

LDW280-18359

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54839	LM-15(45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
LM	LDW 280-54839	LM-6 (36)	1

PART NO. LDW280-18359-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280 54838	LM-15(45)	1
		LM-14 (44)	1
		LM-13(43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
LM	LDW280-54838	LM-6 (36)	1

PART NO. LDW280-18359-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54643	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
LM	LDW280-54643	LM-6 (36)	1

PART NO. LDW280-18359-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54832	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
LM	LDW 280-54832	LM-6 (36)	1

PART NO. LDW 280-18359-11

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO			
		PRIM NO.	JK (001)		
LAST DASH NO. USED	-19	207	MP-16-	4/5/8	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

P ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 2008	

OK

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	A.LITVINOFF 3-26-68	RELIABILITY	
LAYOUT BY	J.CORTELYOU 3-24-68		
CHECKED BY	H.BERNSTEIN 3-28-68		
GRP LEADER	4-1-68		
VEH DES INT	4/2/68		
STRUCT	4/2/68	PROJ ENGR	4/3/68
STRUCT	EB 4/3/68	REL GROUP	L. Marsh 4-5-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD
DESCENT STAGE PROPELLANT
TANK METEOROID PROTECTION

SIZE	CODE IDENT NO.		
B	26512	LDW280-18359	(D)
SCALE	NONE	SHEET 1.00 OF 3	

CDR 4/5/68

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18359-19	E		DOUBLER	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004 X 1 X 1	NONE	NONE	
	↕ -17	↕		SHIELD	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004 X 6 X 21	NONE	NONE	
	-15			SHIELD	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004 X 6 X 21	NONE	NONE	
	-13			SHIELD	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004 X 6 X 21	NONE	NONE	
	LDW280-18359-11	E		SHIELD	AL ALLOY FOIL	QQ-A-250/4	2024-T81	.004 X 6 X 21	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18359
⓪
SCALE NONE
SHEET 2.00

ENG 77.2 5-64

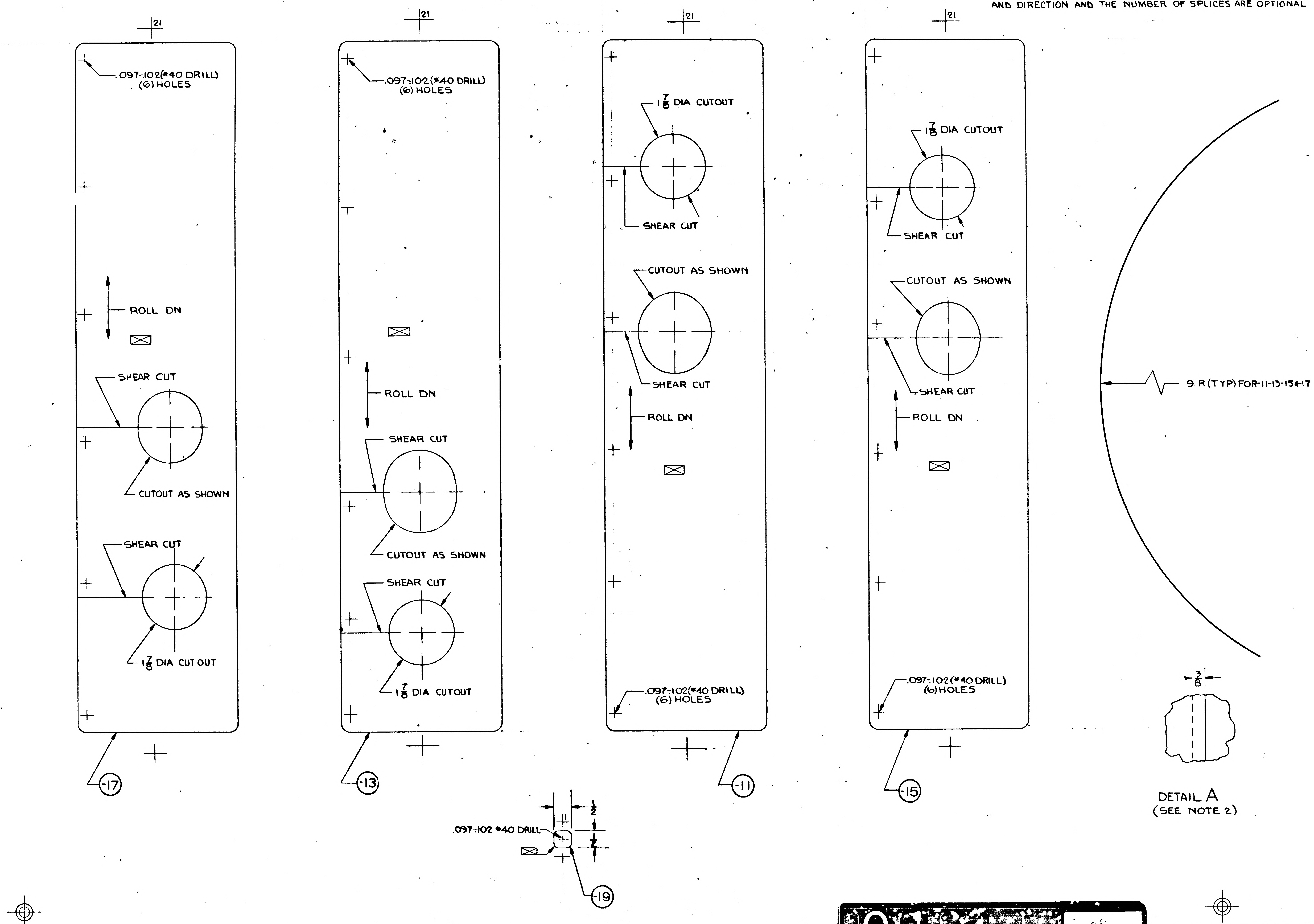
01

NAS 9-1100

TRAN. & K
T.N. 3-14-68

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1 NO TOOLING HOLES PERMITTED IN PARTS.
2 IF -11-13-15&-17 ARE LARGER THAN THAN THE BASIC STOCK SIZE OF ORIGINAL MATERIAL, SHEET MAY BE SPLICED AS SHOWN IN DETAIL "A". SHEETS ARE TO BE TAPED TOGETHER AND THEN SPOT WELDED ON THEIR NEXT HIGHER ASSEMBLY. LOCATION AND DIRECTION AND THE NUMBER OF SPLICES ARE OPTIONAL


21
.097-.102(#40 DRILL) (6) HOLES
ROLL DN
SHEAR CUT
CUTOUT AS SHOWN
1 7/8 DIA CUT OUT
1 7/8 DIA CUTOUT
-17
-13
-11
-15
.097-.102 #40 DRILL
1/2
-19
9 R (TYP) FOR -11-13-15&-17
3/8
DETAIL A
(SEE NOTE 2)

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
E	26512	LDW280-18359

SCALE FULL
SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1337
CONTROL INFO NO. LDW280B7429

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18358 ✓	A1	SEE DWG
-18359 ✓	A1	
-18360	A1	
-18361	A1	
-18363	B1	
-18363	A2	
-18364	A3	
-18365	A7	
-18367	B1	
LDW280-18368	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: 4/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					WJH			
DATE	4/8/69			4-2-69	4/8/69		4/10/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1337

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

LEO 280		EO NO. 1566
CONTROL INFO NO. LDW 280B 8112		

FOR ALL PART NUMBERS EFFECTIVE ON LM-~~10~~ (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18353	SEE DWG	B2
355		32
✓ 356		B2
✓ 358		A2
✓ 359		A2
360		A2
361		A2
362		B2
363		A3
LDW280-18364	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 31 & 32 ⑤

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

Ⓡ GAEC EO RELEASE
8-13-69
JK 8/18/69
8-16-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT REQ'D	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					N			Bauman
DATE	7-29-69			7/29/69	8/12/69		8/12/69	8-16-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1566

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1733
CONTROL INFO NO. LDW280B9167

FOR THE DRAWINGS LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS.*
*APPLICABLE DASH NO.

DRAWING NUMBER *	NEXT ASSY	DWG. TITLE	CHG. LTR
LDW280-54838-1	LDW280-28835	SEE DWG	A2
-54839-1	-28835		A2
-18358-11,-13,-15 & -17 -18358-11,-13,-15, & -17 -18358-11,-13,-15 & -17 -18358-11,-13,-15 & -17	-54643 -54832 -54838 -54839		A3
-18359-11 & -19 -18369-15 & -19 -18359-17 & -19 -18359-13 & -19	-54832 -54838 -54839 -54643		A3
-18360-11,-12, & -13 -18360-11,-12 & -19 -18360-11,-12 & -15 -18360-11,-12 & -17	-54643 -54832 -54838 -54839		A3
-18361-13 & -15 -18361-11 -18361-13 & -15 -18361-17	-54643 -54832 -54838 -54839		A3
-51823-3 & -4	-54508		A4
LDW280-18118-13 & -14	LDW280-51823	SEE DWG	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG59 CCA2205 (5)

REASON FOR EO: LMMP REDESIGN. 3 TANK EXPANSION

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF: FROM - *

GAEC EO RELEASE: JK 10/23

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	—			10-20-69			10/2	10/22/69

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO280
EO NO.: 1733

CDR 10-24
ISSUED BY D SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18360

PART NO LDW 280-18360-11-12 &-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54839	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
LM	LDW280-54839	LM-6 (36)	1 EA

PART NO. LDW 280-18360-11-12&15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54838	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
LM	LDW280-54838	LM-6 (36)	1 EA

PART NO. LDW 280-18360-11-12&-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54643	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
LM	LDW280-54643	LM-6 (36)	1 EA

PART NO. LDW 280-18360-11-12&-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW 280-54832	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
LM	LDW280-54832	LM-6 (36)	1 EA

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00
REV			
SHEET			
REV			
SHEET			
REV			

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 | JJC(001) | MP-16-4/5/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ± 1/2°

P | ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2008

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A. LITVINOFF 3-26-68	RELIABILITY	
LAYOUT BY	J. CORTELYOU 3-25-68		
CHECKED	WCG 3/29/68		
GR LEADER	Thoje [illegible] 4-1-68		
VEH DES INT	J. Stadecool 4/2/68		
STRUCTURES	WJB 4/3/68	PROJ ENGR	J. Lusaten 4/4/68
STRUCTURES	VEB 4/3/68	REL GROUP	L. Marsh 4-5-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE PROPELLANT TANK METEOROID PROTECTION

SIZE B | CODE IDENT NO. 26512 | LDW280-18360

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

OK

CDR 4/5/68

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18360-19	E		ANGLE	AL ALLOY SH	QQ-A-250/4	2024	.016×7×18	T42	NONE	
	-17			ANGLE	AL ALLOY SH	QQ-A-250/4	2024	.016×7×18	T42	NONE	
	-15			ANGLE	AL ALLOY SH	QQ-A-250/4	2024	.016×7×18	T42	NONE	
	-13			ANGLE	AL ALLOY SH	QQ-A-250/4	2024	.016×7×18	T42	NONE	
	-12			ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.016×2×6	NONE	NONE	
	LDW280-18360-11	E		ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.016×2×6	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T42	AL HEAT TREAT	MIL-H-6088

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18360

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

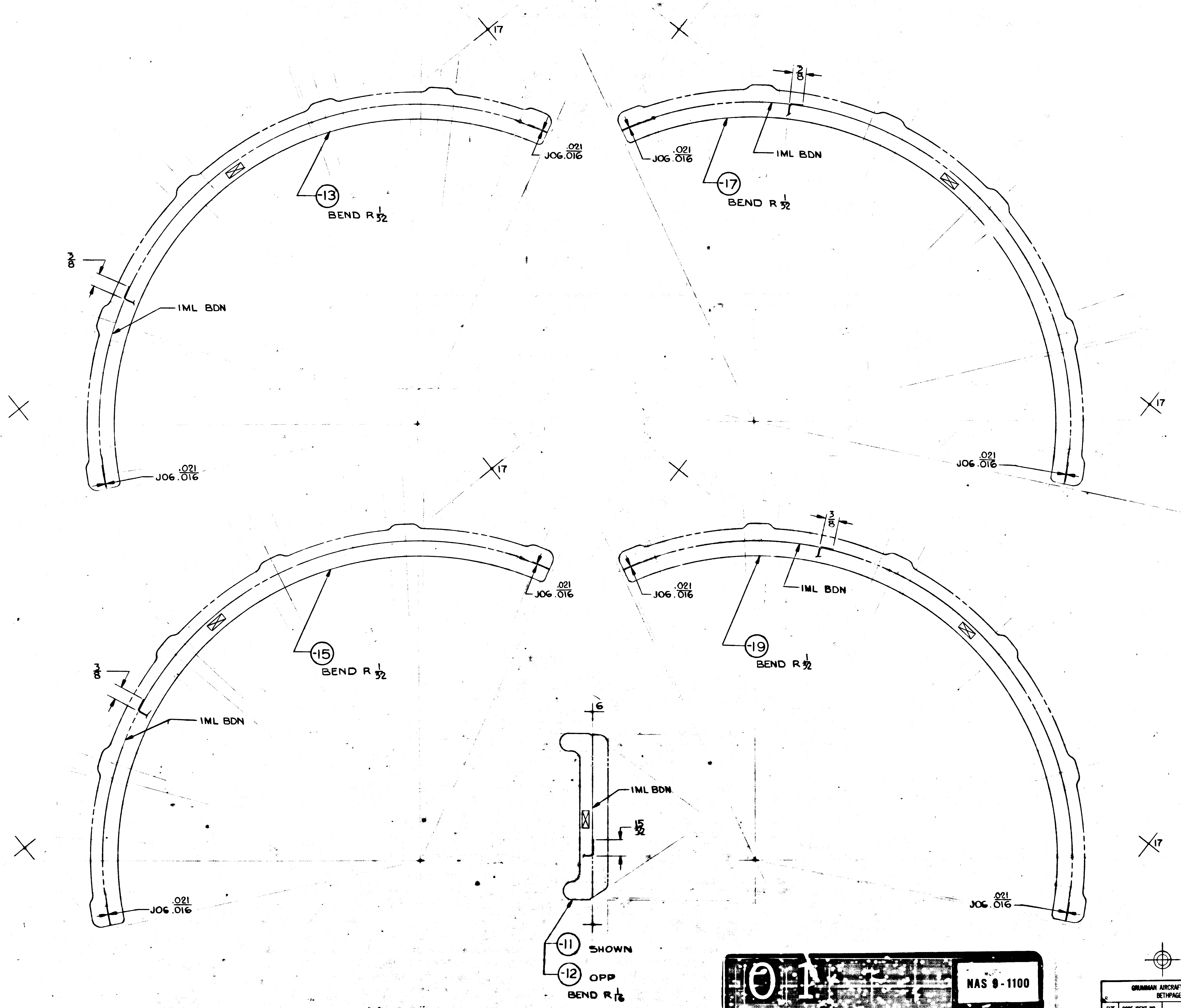
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

TRAM OK
T.S. 3-11-68

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.


35
30
17
-13
BEND R 1/32
JOG .021/.016
3/8
IML BDN
-17
BEND R 1/32
IML BDN
2/8
JOG .021/.016
-15
BEND R 1/32
-19
BEND R 1/32
6
15/32
-11 SHOWN
-12 OPP
BEND R 1/16

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
E	26512	LDW280-18360
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1337
CONTROL INFO NO. LDW280B7429

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18358 ✓	A1	SEE DWG
-18359 ✓	A1	
-18360 ✓	A1	
-18361	A1	
-18362	B1	
-18363	A2	
-18364	A3	
-18365	A7	
-18367	B1	
LDW280-18368	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: [illegible]

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	[illegible]			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1337

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[illegible] LEO 280		EO NO. 1566
CONTROL INFO NO. LDW280B 8112		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
✓ LDW280-18353	SEE DWG	B2	
355		B2	
✓ 356		B2	
✓ 358		A2	
✓ 359		A2	
✓ 360		A2	
361		A2	
362		B2	
363		A3	
LDW280-18364	SEE DWG	A4	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 31 & 32	(5)

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQ'MTS	8-13-69 JK 8/18/69

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		NOT REQ'D		DATE	7-29-69			7/27/69	8/2/69		8/…/69 Bauman 8-16-69
LM		LTA-11 ([redacted]) (23)		REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP N	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1566

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280 EO NO. 1733
CONTROL INFO NO. LDW 280B., 67

FOR THE DRAWINGS LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS.*
*APPLICABLE DASH NO.

DRAWING NUMBER *	NEXT ASSY	DWG. TITLE	CHG. LTR
LDW280-54838-1	LDW280-28835	SEE DWG	A2
-54839-1	-28835		A2
-18358-11,-13,-15 & -17	-54643		A3
-18358-11,-13,-15, & -17	-54832		
-18358-11,-13,-15 & -17	-54838		
-18358-11,-13,-15 & -17	-54839		
-18359-11 & -19	-54832		A3
-18359-15 & -19	-54838		
-18359-17 & -19	-54839		
-18359-13 & -19	-54643		
-18360-11,-12, & -13	-54643		A3
-18360-11,-12 & -19	-54832		
-18360-11,-12 & -15	-54838		
-18360-11,-12 & -17	-54839		
-18361-13 & -15	-54643		A3
-18361-11	-54832		
-18361-13 & -15	-54838		
-18361-17	-54839		
-51823-3 & -4	-54508		A4
LDW280-18118-13 & -14	LDW280-51823	SEE DWG	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG59 CCA2205 (5)

REASON FOR EO
LMMP REDESIGN. 3 TANK EXPANSION

DESCRIPTION OF EO
REMOVED LM-10(40) THRU LM-14(44) EFF: FROM - *

GAEC EO RELEASE: JK 10/23/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

APPROVED BY							
DATE	—			10-20-69		10/21/69	10/22/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE ABOVE	LEO280	1733

CDR 10-24

ISSUED BY D SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW230-54838	LM-15(45)	1 EA
↑	↑	LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
	↓	LM-7(37)	1 EA
	LDW230-54838	LM-6(36)	1 EA
	LDW280-54643	LM-15(45)	1 EA
	↑	LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
↓	↓	LM-7(37)	1 EA
LM	LDW230-54643	LM-6(36)	1 EA

PART NO. LDW280-18361-13&-15 — GAEC SCH NO.

LDW280-18361

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW230-54839	LM-15(45)	2
↑	↑	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
↓	↓	LM-7(37)	2
LM	LDW230-54839	LM-6(36)	2

PART NO. LDW280-18361-17 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW230-54832	LM-15(45)	2
↑	↑	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
↓	↓	LM-7(37)	2
LM	LDW230-54832	LM-6(36)	2

PART NO. LDW280-18361-11 — GAEC SCH NO.

WORK PACKAGE FUNCTION #110 E

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	~	GRUMMAN REL INFO		
LAST DASH NO. USED	-17	PRIM NO.	VC(501)	
		207	PP-16	4/5/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

P	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 2008	

CONTRACT NO. NAS 9-1100 — LINE ITEM — DOCUMENTATION TYPE II

DRAWN BY	W. CONROY 3-26-68	RELIABILITY	
LAYOUT BY	J. CORTELYOU		
CHECKED BY	3-27-68		
GRP LEADER	3-29-68		
VEH DES INT	3/29/68		
STRUCTURES	4/1/68	PROJ ENGR	Pisatori 4/2/68
STRUCTURE	4/2/68	REL GROUP	March 4-5-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE. L. I., NEW YORK

TAB
DESCENT STAGE PROPELLANT TANK
METEOROID PROTECTION

SIZE	CODE IDENT NO.	
B	26512	LDW280-18361

SCALE NONE — SHEET 1.00 OF 3

ENG 77.1 12-65

CDL 4/5/68

01

NAS 9-1100

	LDW230-18361-[illegible]			TAB	AL ALY SH	QQ-A-250/4	2024-T3	.032 x [illegible]	NONE	NONE	
	▲ -[illegible] ▲			▲	▲	▲	▲	.032 x [illegible]	▲	▲	
	▼ -[illegible] ▼			▼	▼	▼	▼	.032 x [illegible]	▼	▼	
	LDW230-18361-[illegible]			TAB	AL ALY SH	QQ-A-250/4	2024-T3	.032 x [illegible]	NONE	NONE	
QTY REQ ASSEMBLY	PART NO	[illegible]	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO	ZONE

SYM OR NO	PROCESS SYM OR FINISH NO	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO	PROCESS SYM OR FINISH NO	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO	PROCESS SYM OR FINISH NO	GRUMMAN SPEC OR MILITARY SPEC

I & T IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE L.I. NEW YORK

SIZE	CODE IDENT NO	
B	26512	LDW230-18361

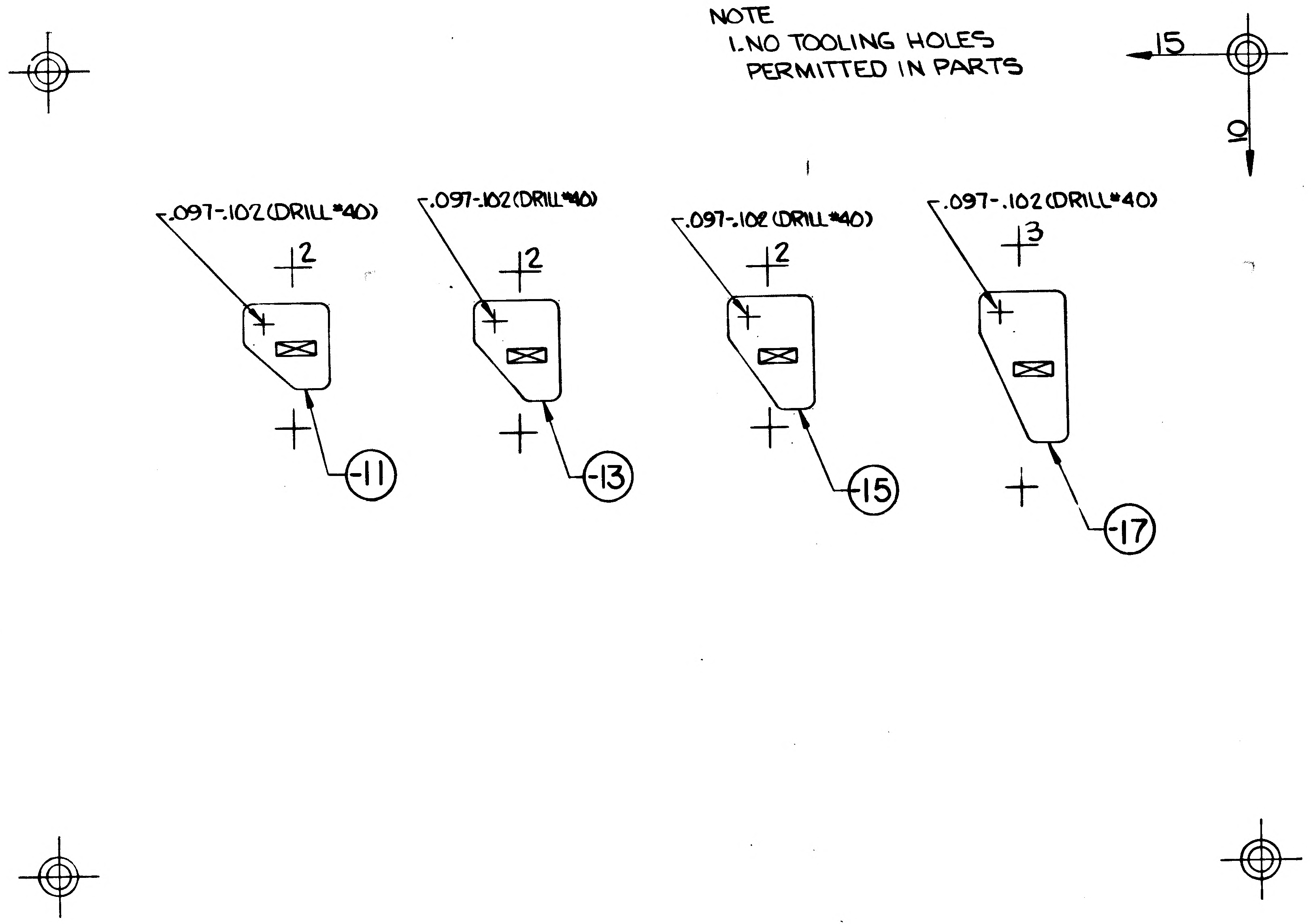
SCALE NONE SHEET [illegible]

01

KAS 9-1100

TRAM. O.K.
T.S. 3-24-60

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS $\pm\frac{1}{32}$	✓

LDW280-18361

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
C	26512	LDW280-18361

LM
MODEL OR END ITEM

SCALE FULL

SHEET 3.00

FOR PHOTO 1 REPRODUCTION

01

NAS 9-1100

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. /337
CONTROL INFO NO. LDW280B7429

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18358 ✓	A1	SEE DWG
-18359 ✓	A1	
-18360 ✓	A1	
-18361 ✓	A1	
-18362	B1	
-18363	A2	
-18364	A3	
-18365	A7	
-18367	B1	
LDW280-18368	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: 4/16/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: /337

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1566
CONTROL INFO NO. LDW280B 8112

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №	
✓ LDW280-18353	SEE DWG	B2	
355		B2	
✓ 356		B2	
✓ 358		A2	
✓ 359		A2	
✓ 360		A2	
✓ 361		A2	
362		B2	
363		A3	
LDW280-18364	SEE DWG	A4	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 31 & 32 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

(R) GAEC EO RELEASE: 8-13-69
JK 8/18/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK	SCRAP
		NOT REQ'D	

APPROVED BY					N		Bauman
DATE	7-29-69			7/31/69	8/1/69	8/1/69	8-16-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1566

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1733
CONTROL INFO NO. LDW 280B9167

FOR THE DRAWINGS LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS.*
*APPLICABLE DASH NO.

DRAWING NUMBER *	NEXT ASSY	DWG. TITLE	CHG. LTR
✓ LDW280-54838-1	LDW280-28835	SEE DWG	A2
-54839-1	-28835		A2
✓ -18358-11,-13,-15 & -17 -18358-11,-13,-15, & -17 -18358-11,-13,-15 & -17 -18358-11,-13,-15 & -17	-54643 -54832 -54838 -54839		A3
✓ -18359-11 & -19 -18359-15 & -19 -18359-17 & -19 -18359-13 & -19	-54832 -54838 -54839 -54643		A3
✓ -18360-11,-12, & -13 -18360-11,-12 & -19 -18360-11,-12 & -15 -18360-11,-12 & -17	-54643 -54832 -54838 -54839		A3
✓ -18361-13 & -15 -18361-11 -18361-13 & -15 -18361-17	-54643 -54832 -54838 -54839		A3
-51823-3 & -4	-54508		A4
LDW280-18118-13 & -14	LDW280-51823	SEE DWG	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG59 CCA2205 (5)

REASON FOR EO: LMMP REDESIGN. 3 TANK EXPANSION

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF: FROM - *

GAEC EO RELEASE: JK 10/23

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	—			10-20-69	10/21/69		10/20/69	10/22/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO280
EO NO.: 1733

CDR 10-24

ISSUED BY DSHAPIRO/P.THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00 1.10 2.00 3.00		D					INC EOA1 ADDED SH 1.10	LTA-3 LM-4 THRU LM-15			E. COX 4-7-69		
	2	3.00							INC EOA2						
	3	3.00							INC EOA3						
	4	3.00							INC EOA4						
	5	1.00		Ⓡ					INC LEO 280-961	TM-5/R		4-11-69	BC		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES							
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18362	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18362-25	E	WEB	AL. ALLOY SH	QQ-A-250/12	7075	.032 × 8 × 8	NONE	88	
		↕ -21	↕	WEB	↕	↕	7075 T6	.045 × 6 × 8	NONE	↓	
		↕ -19	↕	WEB	↕	↕	7075-	.032 × 7 × 8	T6	↓	
		LDW280-18362-17	E	ANGLE	AL. ALLOY SH	QQ-A-250/12	7075	.040 × 2 × 8	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL. HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18362	A

SCALE NONE SHEET 2.00

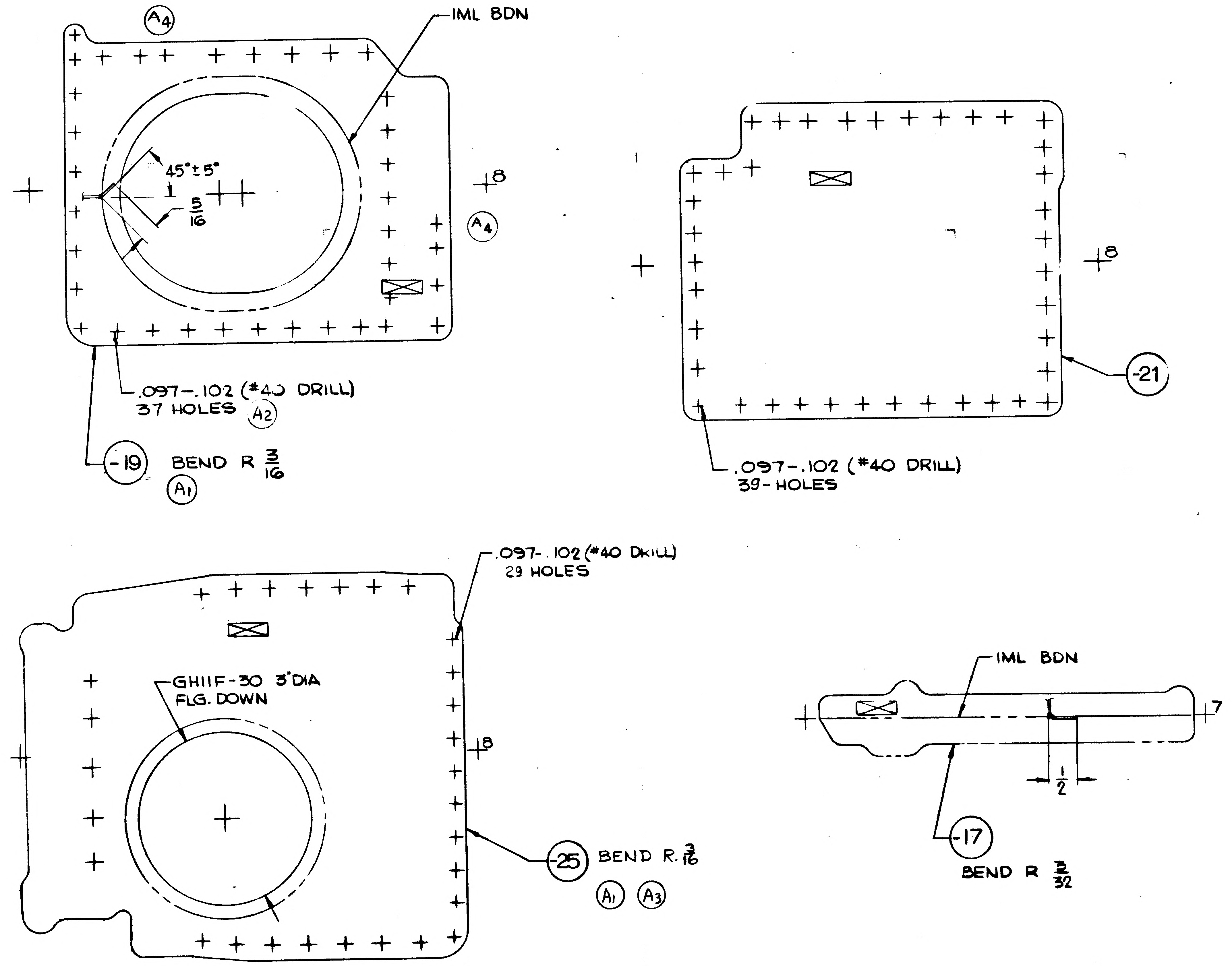
ENG 77.2 7-65

01

NAS 9-1100

LDW280-18362 A

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS



A4
IML BDN
45° ± 5°
5/16
8
A4
.097-.102 (#40 DRILL)
37 HOLES A2
-19 BEND R 3/16
A1
8
-21
.097-.102 (#40 DRILL)
39-HOLES
.097-.102 (#40 DRILL)
29 HOLES
GH11F-30 3"DIA
FLG. DOWN
8
-25 BEND R 3/16
A1 A3
IML BDN
7
1/2
-17
BEND R 3/32

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
$\sqrt[125]{}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\sqrt[200]{}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL $\sqrt{}$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18362A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18362	A
	SCALE FULL		SHEET 3.00	

K2

01

NAS 9-1100

LDW280-18362 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54566	TM-5/R(65)	1 EA
		LTA-3(13)	1 EA
		DVT (70)	1 EA
		LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
LM	LDW280-54566	LM-4 (34)	1 EA

PART NO. LDW280-18362-17,-19,-21 & -25

GAEC SCH NO. 50.2

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -25

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) ME-1A 4/11/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

5 ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD1433

CCA-586

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	J. BIANCHINO	RELIABILITY	
LAYOUT BY	E. RANSOM		
CHECKED BY	WCG 9/18/67		
GP LEADER	9/28/67		
VEH DES INT	9/28/67		
STRUCTURES	WJH 9/21/67	PROJ ENGR	W R Buch 9/28/67
STRUCTURES	J Fep 9/29	REL GROUP	9/30/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB-
DESCENT STAGE-SCIENTIFIC EQUIPMENT BAY
LANDING RADAR SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18362	A
SCALE	NONE	SHEET 1.00 OF 4	

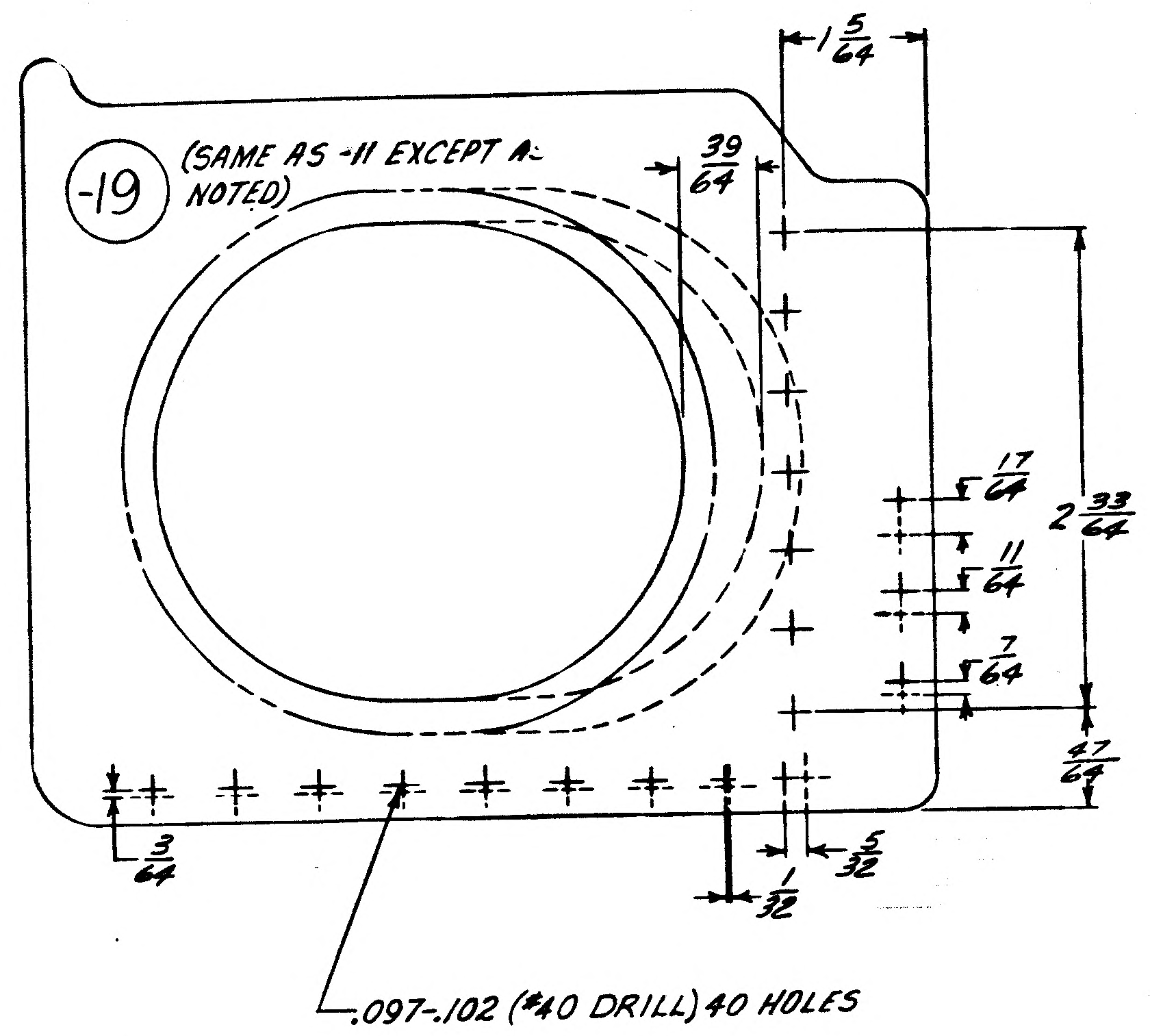
CDR 10-1-67

NG 77.1 12-65

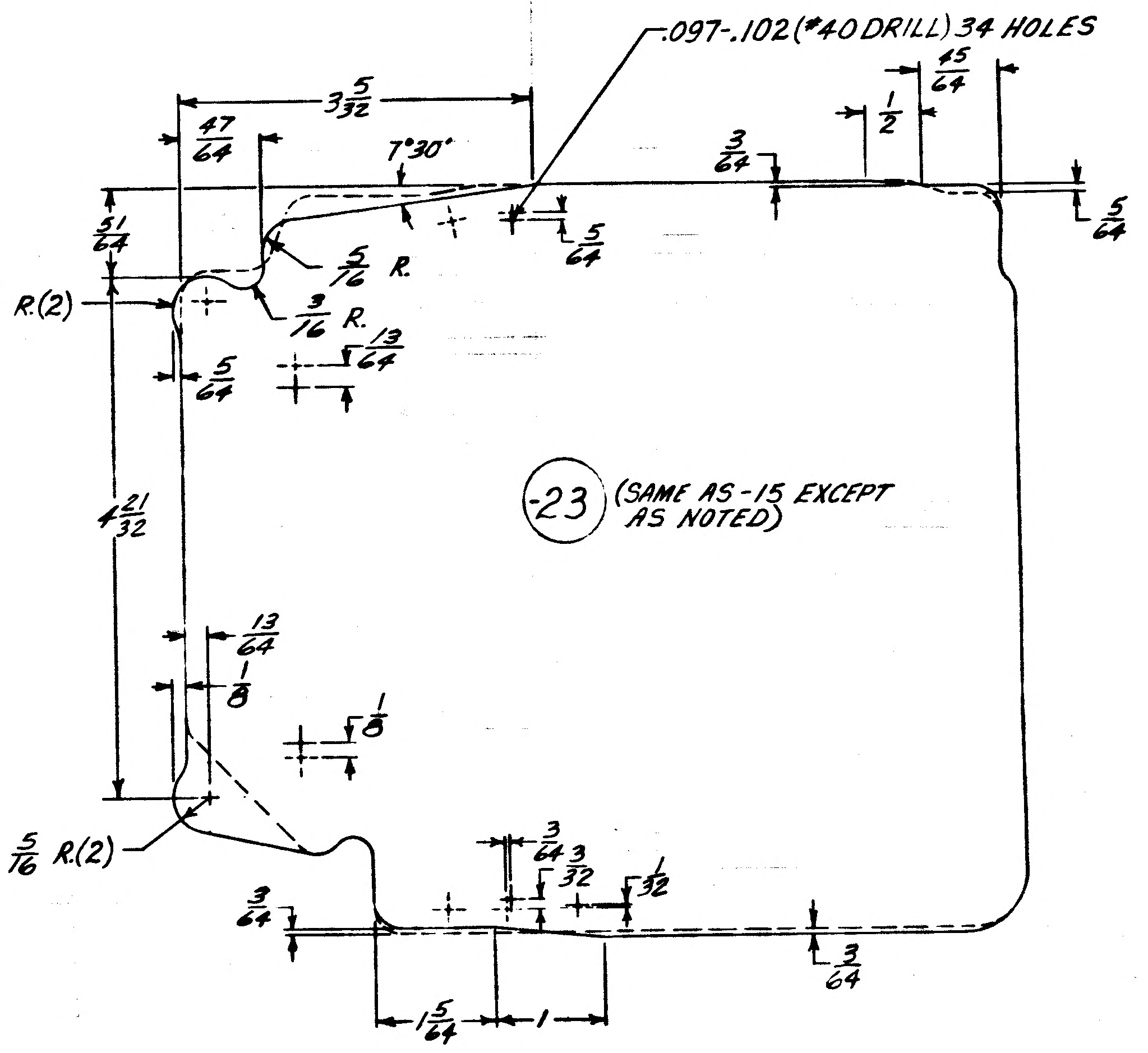
01

NAS 9-1100

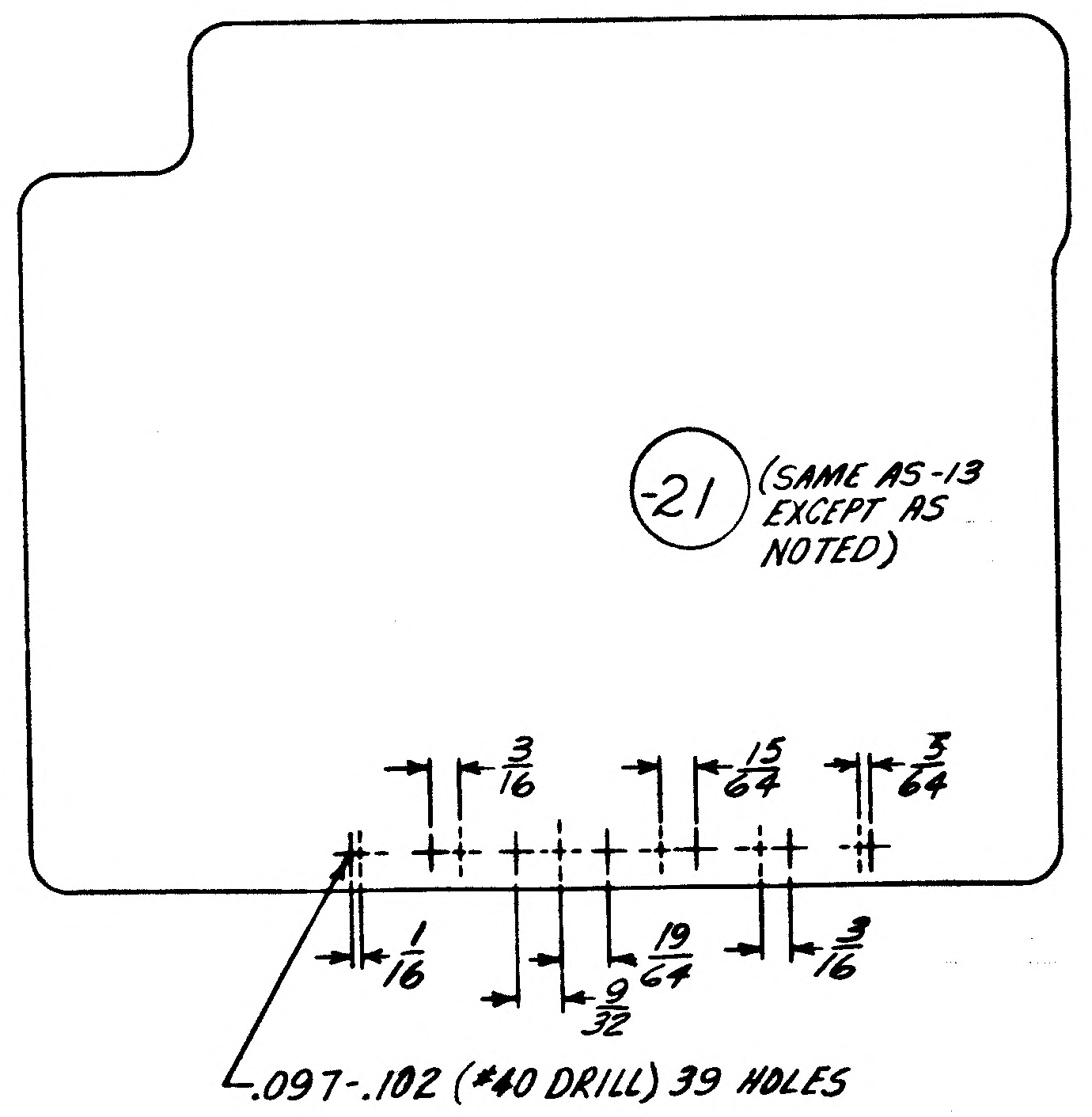
FULL SIZE SHT. AREA (22"x34") = 5 1/3 SQ. FT.
1/4 SIZE SHT. AREA (1/4 RESULT) = 1 1/3 SQ. FT.



-19
(SAME AS -11 EXCEPT AS NOTED)
1 5/64
39/64
17/64
2 33/64
11/64
7/64
47/64
3/64
5/32
1/32
.097-.102 (#40 DRILL) 40 HOLES



.097-.102 (#40 DRILL) 34 HOLES
3 5/32
47/64
7°30'
1/2
15/64
3/64
5/64
41/64
5/16 R.
5/16 R.(2)
3/16 R.
13/64
5/64
4 21/32
-23
(SAME AS -15 EXCEPT AS NOTED)
13/64
1/8
1/8
5/16 R.(2)
3/64
3/32
1/32
3/64
3/64
1 5/64
1



-21
(SAME AS -13 EXCEPT AS NOTED)
3/16
15/64
3/64
1/16
9/32
19/64
3/16
.097-.102 (#40 DRILL) 39 HOLES

-·-·- INDICATES TRIM OF ORIGINAL WEBS.
-+- INDICATES LOCATION OF RIVETS IN ORIGINAL WEBS.

ADD -19, -21 & -23 IDENTICAL TO -11, -13 & -15 RESPECTIVLY, EXCEPT AS NOTED.
ADD LTA-3(13) EFFECTIVITY TO -17, -19, -21 & -23 N/A LDW280-54566 1 EACH REQ'D/VEHICLE
REMOVE -11, -13 & -15.

(5)

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG	✓ LCD 1433 CCA 586
CONTROL INFO NO.	LDW280A99?4				

REASON FOR EO	DESCRIPTION OF EO
REDESIGN FOR ALSEP	ADDED -19, -21 & -23. REMOVED -11, -13 & -15. ADDED LTA-3(13) EFFECT. TO -17, -19, -21 & -23

GRUMMAN EO RELEASE: K 10/2-

MODEL	~~PROCURING AGT. NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13), LM-4(34) THRU LM-15(45)		
LM	DESIGN VERIFICATION TEST (70)		

DRAWING REVISION REQD		DISPOSITION OF PARTS		BY			GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	~~CONT~~
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE 10/23/67	SUPPORT	RELIAB GROUP	10/23/67	10/23/67		10/24/67	
✓			✓	D Y.D.I.							

PRIORITY: C

DRAWING TITLE: WEB-D/S-SCIENTIFIC EQUIPMENT BAY LANDING RADAR SUPPORT

ENGINEERING ORDER
DRAWING NO. LDW280-18362
EO NO. A1

ISSUED BY	SECTION	GROUP NO.	PL	CODE IDENT NO.	
E.RANSAM/JOHN STRAKOSCH X7033	VEH. DES. INT.	335	25	26512	GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE, L. I., N. Y.

ENG 32 3 REV 3-66
10/27

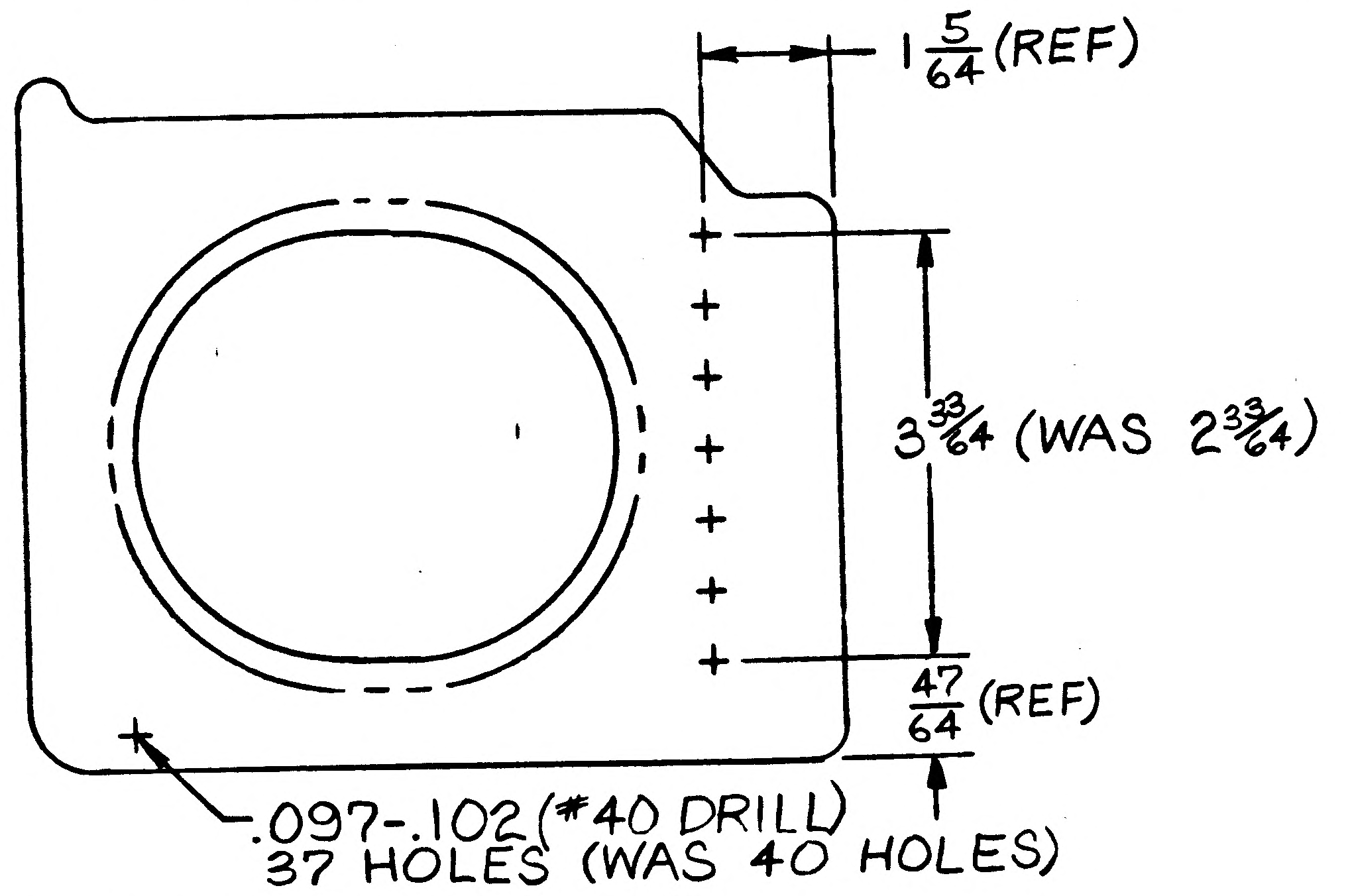
01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP. CODE IDENT NO. 26512 **ENGINEERING ORDER**	DWG. NO. LDW280-18362	EO NO. A2
	CONTROL INFO NO. LM-2- 4335	

REV 3-65

THIS IS A REVISION OF EO-A1



LDW280-18362-19

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD1433 CCA586

REASON FOR EO
REDESIGN FOR ALSEP
PARTS UNABLE TO BE MADE
PER ORIGINAL E.O.

DESCRIPTION OF EO
REFERENCE EO-A1
FOR -19, #40 DRILL (37 HOLES) WAS (40 HOLES)
& DIM. $3\frac{33}{64}$ WAS $2\frac{33}{64}$.

GAEC EO RELEASE: JA (2) 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D (13) LM-4 (34) THRU LM-15 (45) DVT (70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JP			—	MJS	CJ	JP	Botti
DATE	1/11/68			—	12/29/67	12/29/67	1/11/68	1-3-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB~DESCENT STAGE~SCIENTIFIC EQUIPMENT BAY~LANDING RADAR SPT	LDW280-18362	A2

ISSUED BY LIAISON J. MALONEY 12/29/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

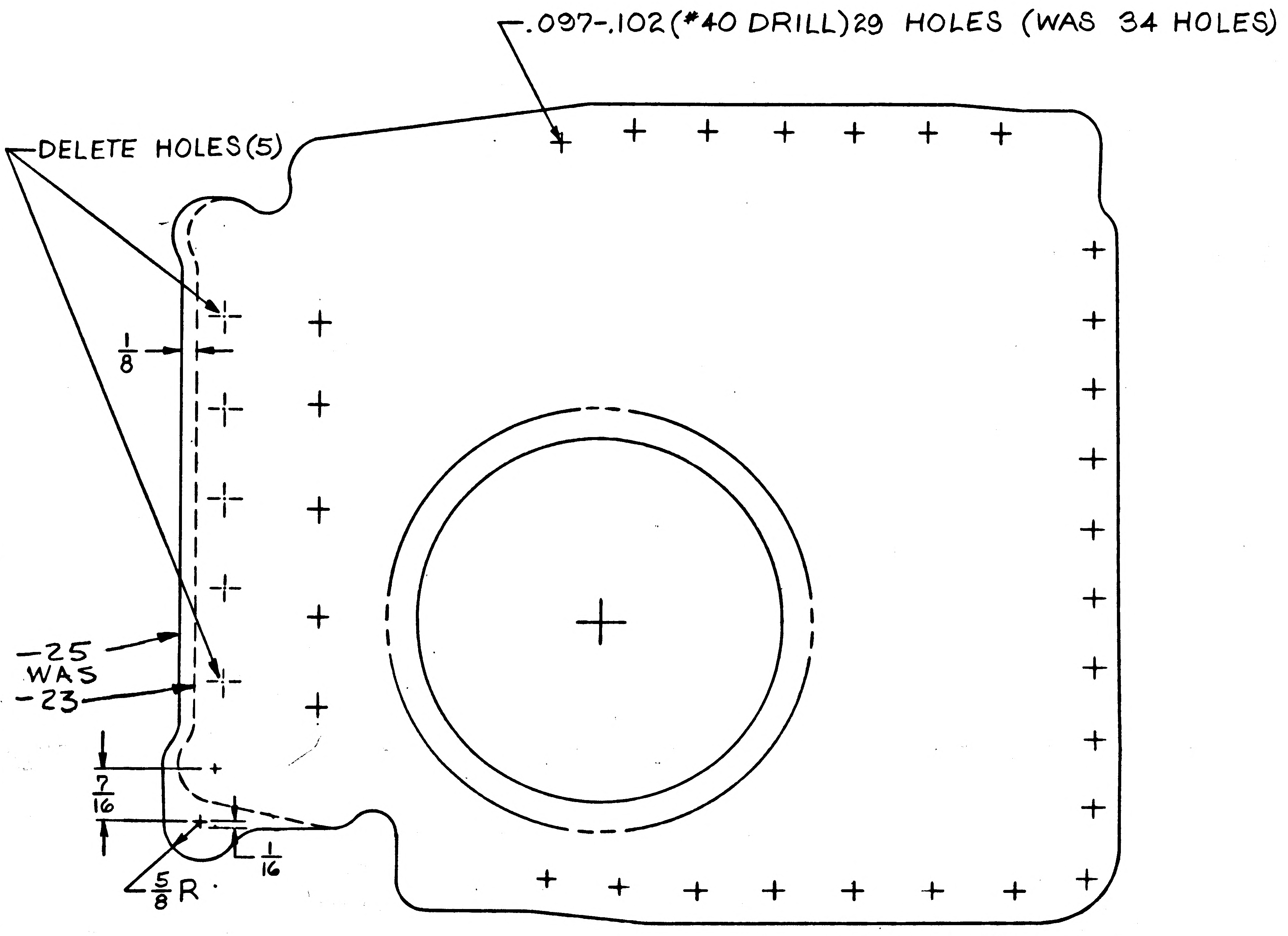
01 NAS 9-1100

9P
ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18362	EO NO.	A3
CONTROL INFO NO.	LM-2-4460		

REF EO A1



IN FLD/DWG, B/M & MOD/BLK ADD -25 (-25 REPLACES -23 & IS IDENTICAL EXCEPT AS SHOWN)

IN FLD/DWG, B/M & MOD/BLK DELETE -23

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NAS 9-1100

TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA586 (2)

REASON FOR EO: REDESIGN FOR ALSEP

DESCRIPTION OF EO: IN FLD/DWG, B/M & MOD/BLK, DELETED -23 & ADDED -25

GAEC EO RELEASE: J/C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D(13) LM-4(34) THRU LM-15(45) DVT(70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
DATE	2/24			—	2/9/68	2/9/68	2/24	2/10/68
2/9/68	VDT							

02026

PRIORITY: C

DRAWING TITLE: WEB~D/S~SCIENTIFIC EQUIPMENT BAY~LANDING RADAR SUPPORT

DRAWING NO.: LDW280-18362

EO NO.: A3

ISSUED BY LIAISON J. MALONEY 2/2/68 SECTION V.D.T GROUP NO. 335 PL 25

ENG 22.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280
EO NO. 1566
CONTROL INFO NO. LDW280B 8112

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18353	SEE DWG	B2
✓ 355		B2
✓ 356		B2
✓ 358		A2
✓ 359		A2
✓ 360		A2
✓ 361		A2
✓ 362		B2
363		A3
LDW280-18364	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 31 & 32 (5)

REASON FOR EO
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (23) REQMTS

Ⓡ GAEC EO RELEASE
SGB 8-13-69
JK 8/13/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQ'D	

				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					N			Bauman
DATE	7-29-69			7/29/69	8/12/69		8/?/69	8-16-69
	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1566

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1724
CONTROL INFO NO. LDW280B9097

ADD LTA-3DR/1(460) EFF. TO THE DASH NO.'S OF THE FOLLOWING DWGS. WITH N/ALDW280-54566.

PART NO. (*)	CHANGE NO.	DWG. NOMENCLATURE
✓ LDW280-18362-17,19,21,25	B3	SEE DWG.
-18417-11	A4	
-18363-11,13,15,17,19	A4	
-M17624-1	B6	
-M17779-11	A7	
LDW280-M17780-11	A4	SEE DWG.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3994 PKG68

REASON FOR EO: SUPPORT INSTL. - D.S. LANDING RADAR-ANTENNA

DESCRIPTION OF EO: FOR (*) ADDED LTA-3DR/1 (460) REQMTS.

(5)

GAEC EO RELEASE: SWB 10/11/69; VS 10/13/69

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					NM			
DATE	—			10-9-69	10-11-69		10/10/69	10-11-69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO280	1724

10/13/69
ISSUED BY R. OLECK, P. THORJUSEN X87222
SECTION VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18363

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54566	DSGN VERIFICATION TEST (70)	5
	LDW280-54566	LM-15(45)	5
		LM-14(44)	5
		LM-13(43)	5
		LM-12(42)	5
		LM-11(41)	5
		LM-10(40)	5
		LM-9(39)	5
		LM-8(38)	5
		LM-7(37)	5
		LM-6(36)	5
		LM-5(35)	5
LM	LDW280-54566	LM-4(34)	5
LM	LDW280-54566	LTA-3(13)	5
PART NO. LDW280-18363-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54566	DSGN VERIFICATION TEST (70)	1 EA
	LDW280-54566	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54566	LM-4(34)	1 EA
LM	LDW280-54566	LTA-3(13)	1 EA
PART NO. LDW280-18363-11,-13 -15 & -19		GAEC SCH NO. 50-2	

WORK PKG FUNCTION NO. 111 3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO			
PRIM NO.	JK(001)		
207	MP-16 10/13/		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.020 ±1/2°

5 ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD19-1433 (CCA#586)

OK

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	G.ZARCADOOLAS 9-13-67
LAYOUT BY	E.RANSOM
CHECKED BY	D.FASS 10-9-67
GR LEADER	J Strakosch 9/25/67
VEH DSGN INT	J Strakosch 9/25/67
STRUCTURES	WB 10/11/67
STRUCTURES	Hilderman 10/11/67
WEIGHTS	
PROJ ENGR	W R Engel
REL GROUP	J Tagliavia 10-12-7

(R)

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE-SCIENTIFIC EQUIP. BAY
LANDING RADAR SUPPORT BEAM - ℄

SIZE B

CODE IDENT NO. 26512

LDW280-18363

SCALE NONE

SHEET 1.00 OF 3

CDR 10-1-67

77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18363-19	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.050 X 2X3	T6	88	3B
		LDW280-18363-17	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.063 X 1 X 3	NONE	88	3B
		LDW280-18363-15	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.050X3X7	T6	88	6C
		LDW280-18363-13	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.050X2X7	T6	88	6B
		LDW280-18363-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.050X2X7	T6	88	4C

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18363

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

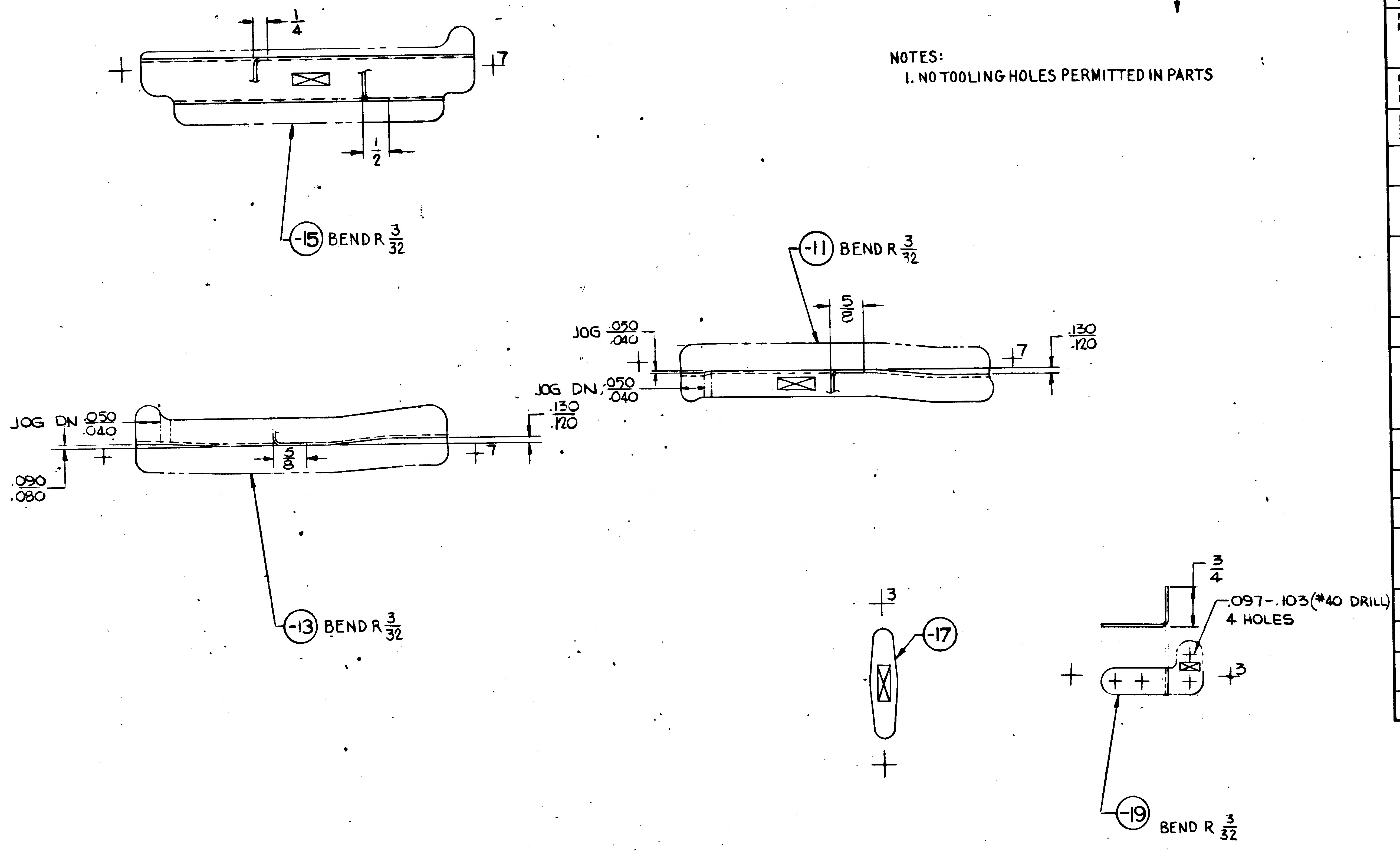
01

NAS 9-1100

LDW280-18363

TRAM OK
95 9/13/67

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	D	26512	LDW280-18363
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 961
CONTROL INFO NO. LDW280B 3377

FOR THE FOLLOWING PART NO'S ADD TM-5/R$^{(65)}$ REQMTS FOR THE N/A'S INDICATED FOR THE QUANTITIES NOTED:

PART NO. *	TITLE	N/A'S & QTY REQD/ASSY LDW280-54633	LDW280-54566	LDW280-54702	CHG. NO.
LDW280M17829-13	SEE DWG.	2			B1
M17865-13		1			A2
-18418-15		2			A4
-18492-11		1			A1
-18500-11		1			A1
M17837-11		2			A2
M17864-11		1			A3
M17866-11		1			A1
M17867-11		1			A2
-18362-17			1		A5
-18362-19			1		
-18362-21			1		
-18362-25			1		
M17780-11			1		A1
-17880-15			1		B2
-17880-19			1		
-17878-19			1		B3
-17623-21			2		C2
-18417-11			1		A1
-18363-11			1		A1
-18363-13			1		
-18363-15			1		
-18363-17			5		
-18363-19			1		
M17624-1			1		B3
M17779-11			1		A4
-17739-31				2	C7
-17739-33				3	
-18283-11				1	A7
M17544-9				1	B3
M17544-11				1	
M17670-5				1	D8
M17671-1				1	B8
M17730-11				1	A6
M17731-11				1	A6
M17732-11				1	A6
M17733-11				1	A7
LDW280M17872-11	SEE DWG.			1	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2L, 2M, 2N (5)

REASON FOR EO: ADD TM-5/R$^{(65)}$ REQMTS

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC C EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD.

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
	JWS			PBT	WJH			
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-21-68

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 961

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1337
CONTROL INFO NO. LDW280B . F29

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18358 ✓	A1	SEE DWG
-18359 ✓	A1	
-18360 ✓	A1	
-18361 ✓	A1	
-18362 ✓	B1	
-18363 ✓	A2	
-18364	A3	
-18365	A7	
-18367	B1	
LDW280-18368	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: K 4/16/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	ADMIN
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO. LEO 280 | EO NO. 1337

053869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1566
CONTR INFO NO. -DW280B 8112

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18353	SEE DWG	B2
✓ 355		B2
✓ 356		B2
✓ 358		A2
✓ 359		A2
✓ 360		A2
✓ 361		A2
✓ 362		B2
✓ 363		A3
LDW280-18364	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 31 & 32 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

Ⓡ GAEC EO RELEASE: 8-13-69; JK 8/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
					N			Bauman
DATE	7-29-69			7/29/69	8/1/69		8/1/69	8-16-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1566

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1724
CONTROL INFO NO. LDW280B9097

ADD LTA-3DR/1(460) EFF. TO THE DASH NO.'S OF THE FOLLOWING DWGS. WITH N/A LDW280-54566.

PART NO. (*)	CHANGE NO.	DWG. NOMENCLATURE
✓ LDW280-18362-17,19,21,25	B3	SEE DWG.
✓ -18417-11	A4	↑
✓ -18363-11,13,15,17,19	A4	
-M17624-1	B6	
-M17779-11	A7	↓
LDW280-M17780-11	A4	SEE DWG.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3994 PKG68

REASON FOR EO: SUPPORT INSTL. - D.S. LANDING RADAR-ANTENNA

DESCRIPTION OF EO: FOR (*) ADDED LTA-3DR/1 (460) REQMTS.

GAEC EO RELEASE (5): SDB 10/11/69; VS 10/13/69

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓		NOT	REQ'D	DATE	-			10-9-69	NM 10-11-69		10/10/69 10-11-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO 280	1724

10/13/69
ISSUED BY R. OLECK, P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18364

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	LTA-3(13)	2
LM	LDW280-54576	DESIGN VERIFICATION TEST (70)	2
LM		LM-15 (45)	2
LM		LM-14 (44)	2
LM		LM-13 (43)	2
LM		LM-12 (42)	2
LM		LM-11 (41)	2
LM		LM-10 (40)	2
LM		LM-9 (39)	2
LM		LM-8 (38)	2
LM		LM-7 (37)	2
LM		LM-6 (36)	2
LM		LM-5 (35)	2
LM	LDW280-54576	LM-4 (34)	2
PART NO. LDW280-18364-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	LTA-3(13)	1 EA
LM	LDW280-54576	DESIGN VERIFICATION TEST (70)	1 EA
LM		LM-15 (45)	1 EA
LM		LM-14 (44)	1 EA
LM		LM-13 (43)	1 EA
LM		LM-12 (42)	1 EA
LM		LM-11 (41)	1 EA
LM		LM-10 (40)	1 EA
LM		LM-9 (39)	1 EA
LM		LM-8 (38)	1 EA
LM		LM-7 (37)	1 EA
LM		LM-6 (36)	1 EA
LM		LM-5 (35)	1 EA
LM	LDW280-54576	LM-4 (34)	1 EA
PART NO. LDW280-18364-11, -13, -15, -17		GAEC SCH NO. 51	

WORK PKG FUNCTION #111 3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00							
REV											
SHEET											
REV											
SHEET											
REV											

LAST SECT LTR USED		GRUMMAN REL INFO
LAST DASH NO. USED	-19	PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2
P ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 CCA 586

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	LUNDSTEN 10-12-67	RELIABILITY	
LAYOUT BY	CLARK 10/12/67		
CHECKED BY	10·12·67		
GR LEADER	J. STRAKOSCH 10-14-67		
VEH DES INT	J. Lusattri 10/14		
STRUCTURES	10/16	PROJ ENGR	[illegible] 10/14
STRUCTURES	Holderman 10/17	REL GROUP	[illegible] 10/17
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE~APOLLO LUNAR SCIENTIFIC EQUIP. PKG ~ LOCK MECHANISM

SIZE B
CODE IDENT NO. 26512
LDW280-18364
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 10/16

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18364-19	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.025× 2 × 2	T6	88	
	-17			TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	LDW20V10011 × 2	NONE	88	
	-15			TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	LDW20V10011 × 2	NONE	88	
	-13			CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.025× 3 × 6	T6	88	
	LDW280-18364-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.025× 3 × 8	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18364

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

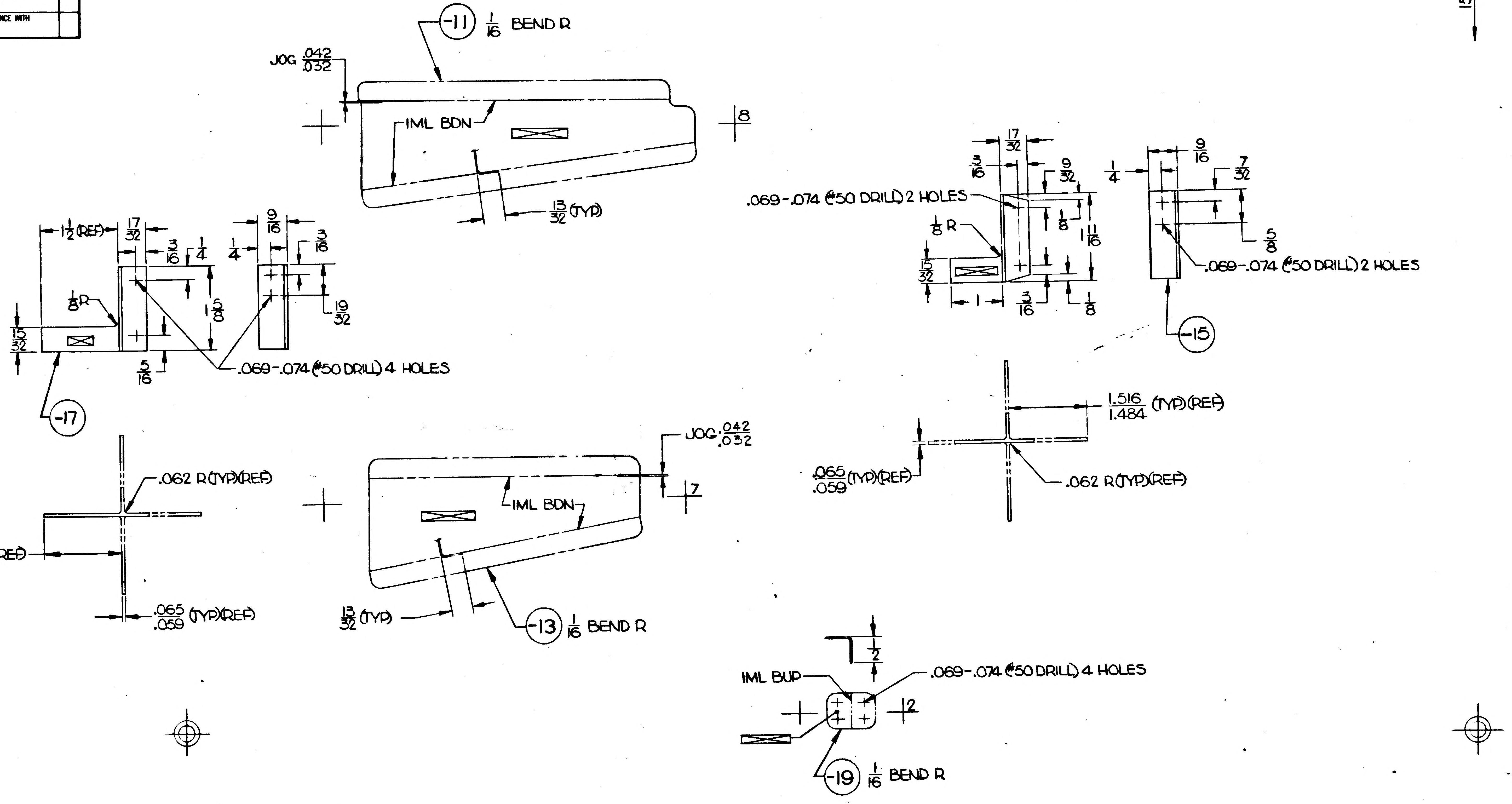
01

NAS 9-1100

LDW280-18364

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.


-11 1/16 BEND R
JOG .042/.032
IML BDN
8
13/32 (TYP)
25
15
1 1/2 (REF)
17/32
3/16
1/4
9/16
3/16
1/8 R
1 5/8
19/32
15/32
5/16
.069-.074 (#50 DRILL) 4 HOLES
-17
17/32
3/16
9/32
1/8
1/8 R
.069-.074 (#50 DRILL) 2 HOLES
1 1/16
15/32
1
3/16
1/8
9/16
1/4
7/32
5/8
.069-.074 (#50 DRILL) 2 HOLES
-15
.062 R (TYP)(REF)
1.516/1.484 (TYP)(REF)
.065/.059 (TYP)(REF)
JOG .042/.032
7
IML BDN
13/32 (TYP)
-13 1/16 BEND R
1.516/1.484 (TYP)(REF)
.065/.059 (TYP)(REF)
.062 R (TYP)(REF)
1/2
IML BUP
.069-.074 (#50 DRILL) 4 HOLES
2
-19 1/16 BEND R

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18364
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

DWG 73.3 REV. 3-67

0 1

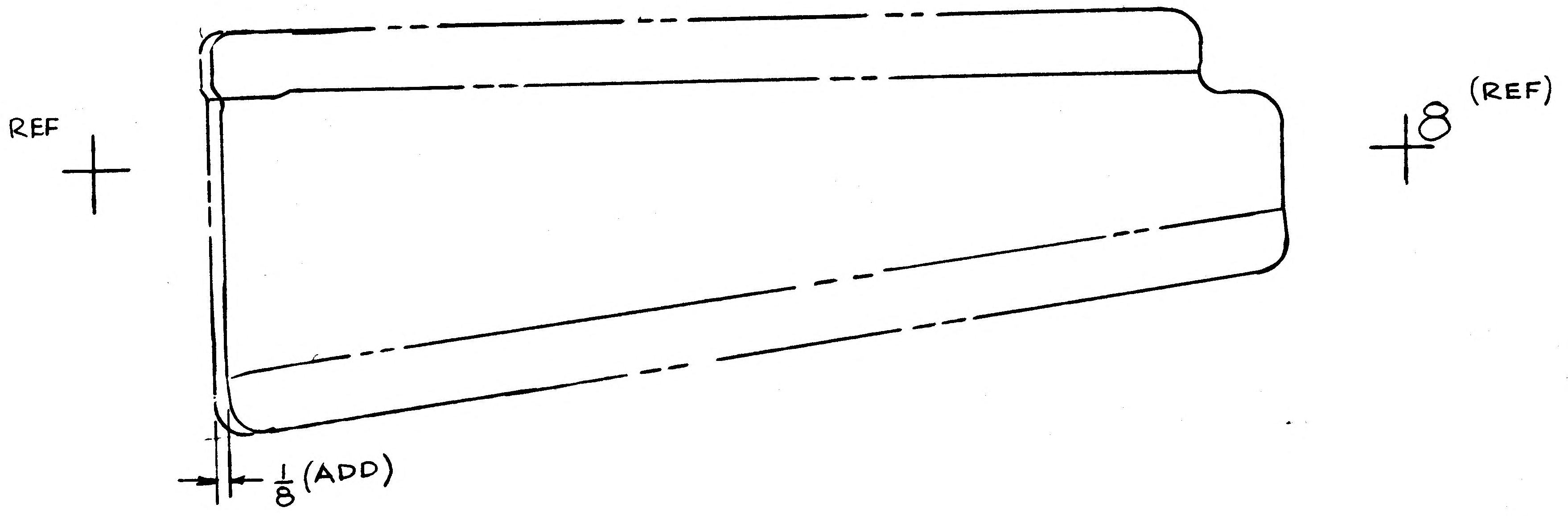
NAS 9-1100

ENG 32X REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18364
EO NO. A1
CONTROL INFO NO. LM-2-4258

IN F/D, B/M & M/B
CREATE -21 (-21 IDENTICAL TO -11 EXCEPT AS SHOWN)



DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 1433 CCA 586

REASON FOR EO: LONGER PART REQUIRED TO MAINTAIN PROPER EDGE DISTANCE

DESCRIPTION OF EO: IN F/D, B/M & M/B CREATED -21, DELETED -11

GAEC EO RELEASE (2) 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM4(34)	THRU LM15(45)	
LM		DVT (70)	
LM		LTA-3 (13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-11

APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
JAS			—				
DATE 12-2-67			—	12/6/67	12/5/67	12-2-67	12-6-67
VD1							

PRIORITY: C

DRAWING TITLE: CHANNEL DESC. STAGE ~ APOLLO LUNAR SCIENTIFIC EQUIP PKG ~ LOCK MECHANISM

DRAWING NO. LDW280-18364
EO NO. A1

ISSUED BY LIAISON L.J. BARATELLI x3604 SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 943	
CONTROL INFO NO. LDW280B3241			

FOR THE FOLLOWING PART NO'S. ADD TM-5/R(65) REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9
-17623-19		2	
-18512-11		4	B1
-17711-25		1	C9
-17711-27		1	
-17792-21		1	B9
-17792-23		1	
-18340-15		1	·A4
-18342-11		1	A3
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13		1	·A1
LDW280-18478-15	SEE DWG.	1	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3075 CCA 586 PKG 2G (5)

REASON FOR EO	DESCRIPTION OF EO
ADD TM-5/R(65) REQMTS.	ON (*) ADDED TM-5/R(65) REQMTS.

GAEC C EO RELEASE 5/16/68

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		NOT REQD		DATE	5/13/68			5-13-68	5/17/68		5/13/68	5/16/68
LM		TM-5/R(65)		REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				PRIORITY C	DRAWING TITLE SEE DWG.							DRAWING NO. LEO 280				EO NO. 943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. /337
CONTROL INFO NO. LDW280B7429

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18358 ✓	A1	SEE DWG
-18359 ✓	A1	
-18360 ✓	A1	
-18361 ✓	A1	
-18362 ✓	B1	
-18363 ✓	A2	
-18364 ✓	A3	
-18365	A7	
-18367	B1	
LDW280-18368	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG54 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: 4/8/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: ☑ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: ☐ REWORK ☑ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	/337

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280
EO NO. 1566
CONTROL INFO NO. LDW280B 8112

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18353	SEE DWG	B2
355		B2
✓ 356		B2
✓ 358		A2
✓ 359		A2
✓ 360		A2
✓ 361		A2
✓ 362		B2
✓ 363		A3
✓ LDW280-18364	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 31 & 32 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

Ⓡ GAEC EO RELEASE: SJB 8-13-69; JK 8/18/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-1' ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY				N			Bauman
DATE	7-29-69			7/31/69	8/12/69		8/14/69 8-16-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1566

8-26-69
ISSUED BY G. HANSMANN X87222 (MH) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 · 65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1634
CONTROL INFO NO. LDW280B 8435

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG. NO.
✓ LDW280 - 18388	SEE DWG	LDW280 - 54576	A6
✓ - 18389		- 54576	B2
✓ - 18390		- 54576	A6
✓ - 18391		- 54576	A5
✓ - M17745		- 54576	A7
✓ - M17742		- 54576	A7
✓ - M17770		- 54576	A7
✓ - 18364		- 54576	A5
- 18392		- 54576	A5
- 18512		- 54576	B4
M17854		- 54576	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 2 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: 8-21-9; JK 8/27/9

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	PBF							
DATE	8-8-69			8/4/69	8/11/69		8/26/69	8/27/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1634

8-25-69
ISSUED BY A. FURIO Y 86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10		LF 32					INC EO A1 ADDED SH 1-10	LTA-5 (15 LM-1 (31) THRU LM-15 (45)			S. CARANO 3-25-69		
	2	1.00, 2.00 3.00	6A	S					INC EO A2	LM-6 (36) THRU LM-15 (45)					
	3	1.00		S					INC LEO280-908	LM-5 (35)					
	4	1.00		S					INC LEO280-910				H.D.		
	5	1.00 2.00 3.00		LFM 200					INC EO A5	LM-5, LM-6 THRU LM-15 VDT (70)		H.D.	H. SCHWEITER 3-25-69	J.V.	
	6	1.00							INC LEO 280-1147 R.S.	LM-5		H.D.	W. VAN VORST 4-1-69		
	7	1.00						Ⓡ	INC LEO 280-1337	LM-15					

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY
A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18365	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18365-24	E	STIFFENER	TITANIUM SH	MIL-T-9046D TYPE III COMP-C ANL	6AL-4V	.020 × 2 5/8 × 9 5/8	NONE	NONE	
		-23		STIFFENER				.020 × 2 5/8 × 9 5/8			
		-15-1		STIFFENER				.020 X 3 X 22 3/8			
		-21		CLIP				.020 X 7/8 X 1 1/2			
		-19		CLIP				.020 X 7/8 X 1 5/8			
		-17		CLIP				.020 X 3/4 X 1 3/4			
		-15		STIFFENER				.020 x 4 X 22 3/8			
		-13						.020 X 2 X 7 7/8			
		-12				MIL-T-9046D		.020 X 2 5/8 X 9 5/8			
		LDW280-18365-11	E	STIFFENER	TITANIUM SH	TYPE III COMP-C ANL	6AL-4V	.020 X 2 5/8 X 9 5/8	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18365	A

SCALE NONE SHEET 2.00

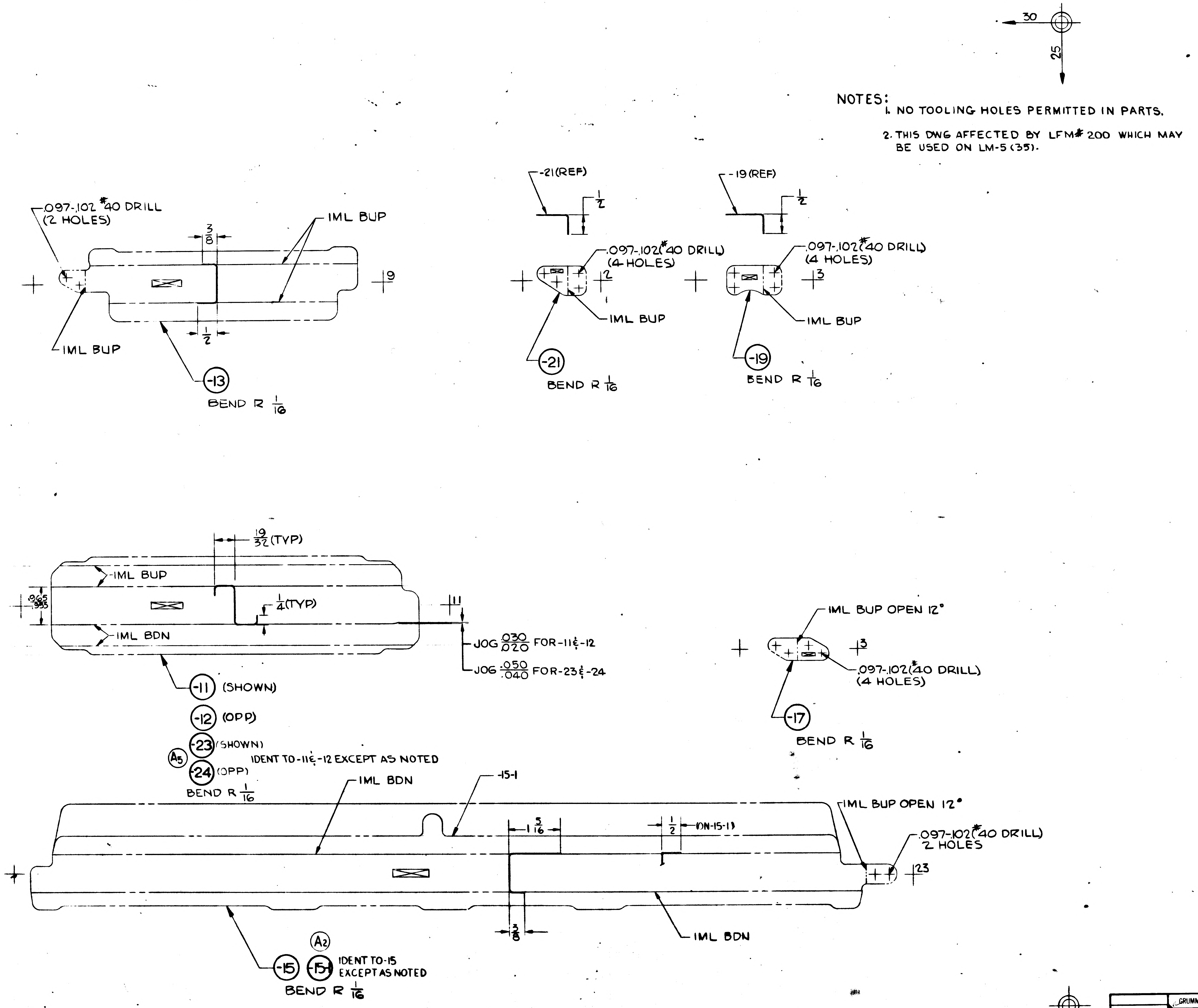
ENG 77.2 7-65

01

NAS 9-1100

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. THIS DWG AFFECTED BY LFM# 200 WHICH MAY BE USED ON LM-5 (35).



30
25
-21(REF)
1/2
-19(REF)
1/2
.097-.102 #40 DRILL (2 HOLES)
3/8
IML BUP
19
IML BUP
1/2
-13
BEND R 1/16
.097-.102 #40 DRILL (4 HOLES)
2
IML BUP
-21
BEND R 1/16
.097-.102 #40 DRILL (4 HOLES)
3
IML BUP
-19
BEND R 1/16
19/32 (TYP)
IML BUP
.965/.955
1/4 (TYP)
11
IML BDN
JOG .030/.020 FOR-11 & -12
JOG .050/.040 FOR-23 & -24
-11 (SHOWN)
-12 (OPP)
-23 (SHOWN)
A5
-24 (OPP)
IDENT TO -11 & -12 EXCEPT AS NOTED
BEND R 1/16
IML BUP OPEN 12°
3
.097-.102 #40 DRILL (4 HOLES)
-17
BEND R 1/16
IML BDN
-15-1
1 5/16
1/2
DN-15-1
IML BUP OPEN 12°
.097-.102 #40 DRILL 2 HOLES
23
3/8
IML BDN
A2
-15
-15-1
IDENT TO -15 EXCEPT AS NOTED
BEND R 1/16

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL. ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18365 A

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM	SIZE F	CODE IDENT NO. 26512	LDW280-18365	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

2 FOR PHOTO | REPRODUCTION1 KZ

01

NAS 9-1100

ENG 32.1 REV 3-65

Ⓐ

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18365 | EO NO. A1
CONTROL INFO NO. LDW280A8605

ON -11, -12, -13, -15, -17, -19, -21 -

INCREASE QTY REQD FROM (1) EA TO 4 EA

FOR ALL NHA.

LFM

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	LCD 1932

REASON FOR EO: INCORRECT QTY

DESCRIPTION OF EO: ON -11, -12, -13, -15, -17, -19, -21, QTY REQD 4 EA WAS (1) EA

GAEC EO RELEASE: C
JK 8/14/7
02025

MODEL	~~ACTIVITY NO.~~ E.I.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM32.	LTA-5(15).	
		LM-1(31) thru	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
/		NOT REQD		• DATE	8/14/67			8/1/67	8/1	REL FOR MFG PROJ KSC	8-14-67
REVISE DWG	RECORD EO	REWORK	SCRAP		V01	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	~~LIAISON~~ ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S - PROP QTY GAGE COVER STIFFENER -	LDW280-18365	A1

ISSUED BY [redacted] C. Farley x3604 SECTION V. D. I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

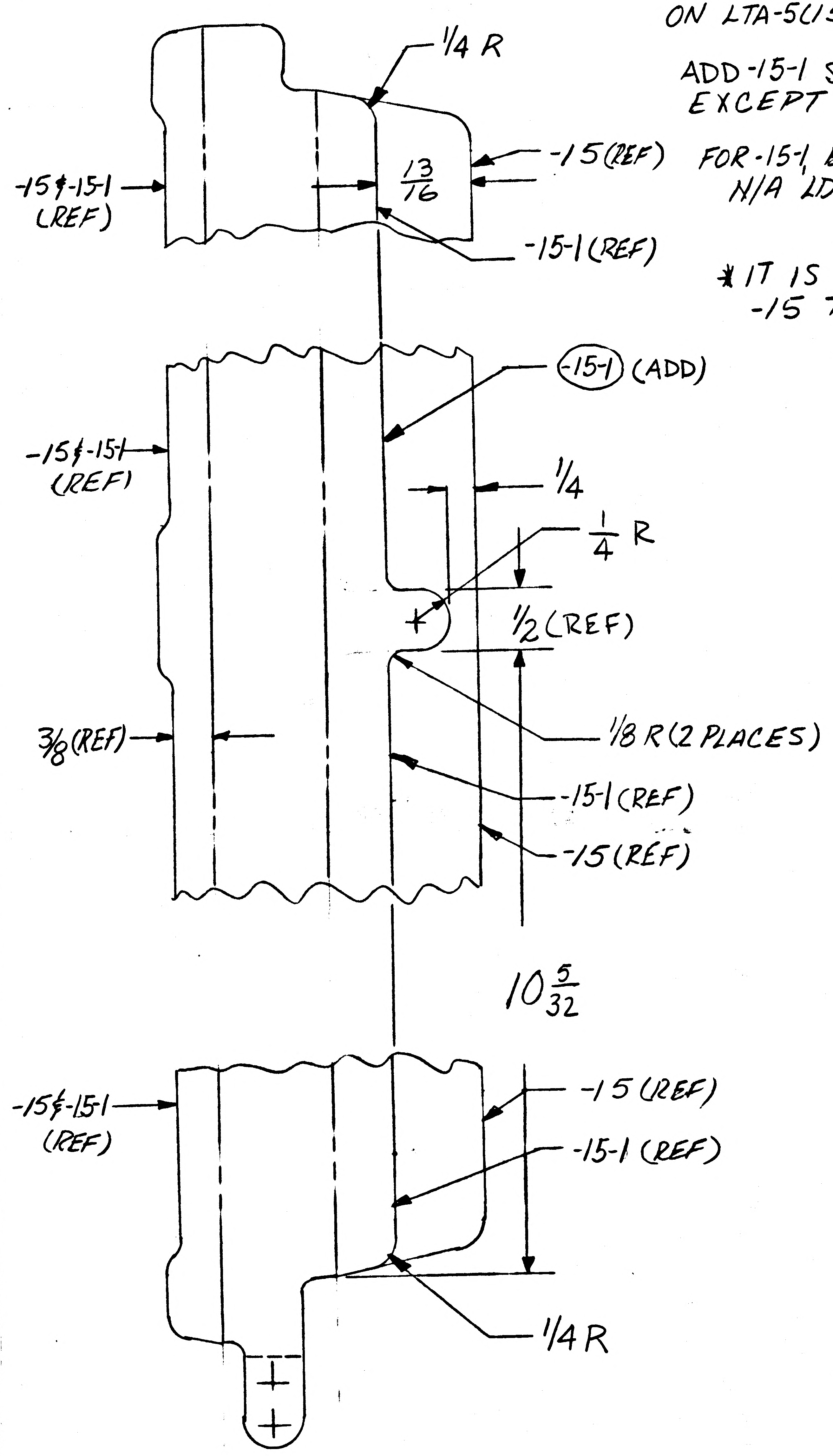
DWG. NO. LDW280-18365 | EO NO. A2
CONTROL INFO NO. LDW280B1932

IN F/D, B/M & MB RESTRICT -15 FOR USE ON LTA-5(15) & LM-1(31) THRU LM-5(35)

ADD -15-1 STIFFENER IDENTICAL TO -15 EXCEPT AS SHOWN

FOR -15-1, EFF: LM-6(36) THRU LM-15(45) N/A LDW280-52663 4 EA.

* IT IS PERMISSIBLE TO REWORK -15 TO -15-1



1/4 R
-15 (REF)
13/16
-15 & -15-1 (REF)
-15-1 (REF)
-15-1 (ADD)
-15 & -15-1 (REF)
1/4
1/4 R
1/2 (REF)
3/8 (REF)
1/8 R (2 PLACES)
-15-1 (REF)
-15 (REF)
10 5/32
-15 & -15-1 (REF)
-15 (REF)
-15-1 (REF)
1/4 R

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2532	PKG 1	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PQGS ACCESS DOOR REDESIGN	ADDED -15-1 RESTRICTED -15 TO LTA-5(15) & LM-1(31) THRU LM-5(35) (WAS) LTA-5(15) & LM-1(31) THRU LM-15(45)	JK 3/18

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS
LM		LM-6(36)		✓ REVISE DWG	NOTED
		THRU		RECORD EO	REWORK
		LM-15(45)			SCRAP

APPROVED BY									
DATE	3/15/68			3/11/68	3/18/68		3/18/68	3/19/68	
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STIFFENER D/S-PQGS COVER	LDW280-18365	A2

3-11-68
ISSUED BY D.SHAPIRO/P.THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25
CDR 031868

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 908
CONTROL INFO NO. LDW280B2739

ON THE FOLLOWING DRAWINGS REVISE EFFECTIVITIES FOR THE FOLLOWING DASH NUMBERS *

DWG. NO. *	ADD **	EFFECTIVITY (WAS) ***	CHG NO
LDW280-17543-29	LM-5(35)	LM-6(36) THRU LM-15(45)	B9 ✓
-17543-31	↕	↕	
-17543-33			
-18365-15-1			A3 ✓
LDW280-18525-11	LM-5(35)	LM-6(36) THRU LM-15(45)	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2532 PK61 (5)

REASON FOR EO: PQGS ACCESS DOOR REDESIGN

DESCRIPTION OF EO:
FOR *
ADDED: EFFECTIVITY **
EFFECTIVITY (WAS) ***

GAEC EO RELEASE C: VC 4/3/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP

	S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					PSF	WJR			
DATE		3/29/68			3/28/68	4/1/68	4/1/68	4-2-68	

PRIORITY: C
DRAWING TITLE: "SEE DWG"
DRAWING NO.: LEO 280
EO NO.: 908

ISSUED BY D. SHAPIRO/P. THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25
CDR 040168

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LE0280 | EO NO. 910
CONTROL INFO NO. LDW280B2737

ON THE FOLLOWING DRAWINGS REVISE EFFECTIVITIES FOR THE FOLLOWING DASH NUMBERS *

	DWG. NO. *	REMOVE **	EFFECTIVITY (WAS) ***	CHG NO.
▲	LDW280-17543-23	LM-5(35)	LTA-5(15), LM-1(31) THRU LM-5(35)	B10
▲	↕ -17543-25	↕	LM-2(32) THRU LM-5(35)	
▲	-17543-27		LM-2(32) THRU LM-5(35)	
▲	-18365-15		LTA-5(15), LM-1(31) THRU LM-5(35)	A4
▲	-18366-17		LTA-5(15), LM-1(31) THRU LM-5(35)	A5
●	P18133-11		LTA-3DIR(46), LM-1(31) THRU LM-5(35)	A7
●	LDW280P18133-13	LM-5(35)	LM-2(32) THRU LM-5(35)	

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ LCD2532 PKG 1 (▲) & LCD 2637 PKG 2 (●) ⑤

REASON FOR EO: PQGS ACCESS DOOR REDESIGN

DESCRIPTION OF EO: FOR *
REMOVED: EFFECTIVITY **
EFFECTIVITY (WAS) ***

GAEC I C EO RELEASE: H.F. 4/4/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	

DRAWING CHANGE REQD: ☑ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: ☐ REWORK ☑ SCRAP

APPROVED BY	JAS			RSF	W/W		JRP	JM
DATE	3/29/68			3/27/68	4/1/68		4/1/68	4-2-68
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: "SEE DWG"
DRAWING NO.: LEO 280
EO NO.: 910

ISSUED BY D. SHAPIRO / P. THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25
CDR 032868

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 1147
CONTROL INFO NO. LDW280B5630

CHG. LTR.	DRAWING NO.*	RESTRICT FOR USE ON **	WAS USED ON ***
A6	LDW280-18365-11 -12	LM-2(32) THRU LM-4(34)	LM-2(32) THRU LM-5(35)
	LDW280-18365-15-1	LM-6(36) THRU LM-15(45) DVT (70), LFM200 LM-5(35).	LM-5(35) THRU LM-15(45), DVT (70), LFM200 LM-5(35).
	LDW280-18365-13 -17, -19, -21	LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), LTA-5(15), DVT(70) LFM200 LM-5(35).	LM-1 (31) THRU LM-15 (45) LTA-5 (15), DVT(70), LFM200 LM-5 (35).
C1	LDW280-17539-13 -14	LTA-5(15), LTA-8(18), LTA-3 D/R, LM-1(31) THRU LM-4 (34), LM-6(36) THRU LM-15(45), QT(72), DVT(70) LFM200 LM-5 (35).	LTA-5(15), LTA-8(18), LTA-3 D/R, LM-1 (31) THRU LM-15(45), QT(72), DVT(70), LFM200 LM-5(35).
	LDW280-17539-23, -24, -25, -26	LM-2(32), LM-3(33), LM-4(34) & LM-6(36)	LM-2(32) THRU LM-6(36)

FOR TITLE SEE DWG.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2965 PKG. 5 CCA 1235

REASON FOR EO: REDESIGN BASE HEAT SHIELD FOR D/E THRUST DECAY

DESCRIPTION OF EO: RESTRICTED EFF OF -* BY REMOVING LM-5(35) PRODUCTION EFF

GAEC EO RELEASE C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	EI	LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	10/7/68			10-7-68			10/8/68	10-15-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 1147

CDR 10/25/68
ISSUED BY Joe Lucchesi PS/G. Zeman X86046 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1337
CONTROL INFO NO. LDW280B7429

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18358 ✓	A1	SEE DWG
-18359 ✓	A1	
-18360 ✓	A1	
-18361 ✓	A1	
-18362 ✓	B1	
-18363 ✓	A2	
-18364 ✓	A3	
-18365 ✓	A7	
-18367	B1	
LDW280-18368	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/15/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/4/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1337

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 22.1 REV 3-65

NO. LEO 280 | EO NO. 1552
CONTROL INFO NO. LDW 280B 8113

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18365	SEE DWG	B1
368		B2
369		A6
370		A5
372		A5
374		A5
375		A5
378		A5
379		A7
LDW280-18380	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 32 & 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

Ⓡ GAEC EO RELEASE: 8-13-69
JK 8/15/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY					N			Bauman
DATE	7-29-69			7/29/69	8/2/69		8/7/69	8/14/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1552

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00 THRU 4.00		LFM-32					INCORPORATED EO A1, ADDED SH 1.10 & 4.00	LM-1, LTA-5			ROBERTS 1-13-69		
	2	1.00							INCORPORATED EO A2	L[illegible] THRU LM-15					
	3								INCORPORATED EO A3	NOT REQD					
	4	1.00		S					INCORPORATED EO A4	LM-6 THRU LM-15			2-14-69		
	5	1.00		S Ⓐ					INCORPORATED LEO 280-910.	LM-5		H.D.	ECG.		

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS
A					

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18366	A
SCALE NONE		SHEET 1.10	

Ⓐ

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18366-17	E	WEB	TITANIUM SH	MIL-T-9046 TYPE III, COMP. C	6AL-4V ANNEALED	.017 x 13 x 29	NONE	NONE	
		LDW280-18366-15	E	WEB	TITANIUM SH	MIL-T-9046 TYPE III, COMP. C	6AL-4V ANNEALED	.017 x 13 x 29	NONE	NONE	
		LDW280-18366-13	E	COVER	TITANIUM SH	MIL-T-9046 TYPE III, COMP. C	6AL-4V ANNEALED	.017 x 7¼ x 7¼	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

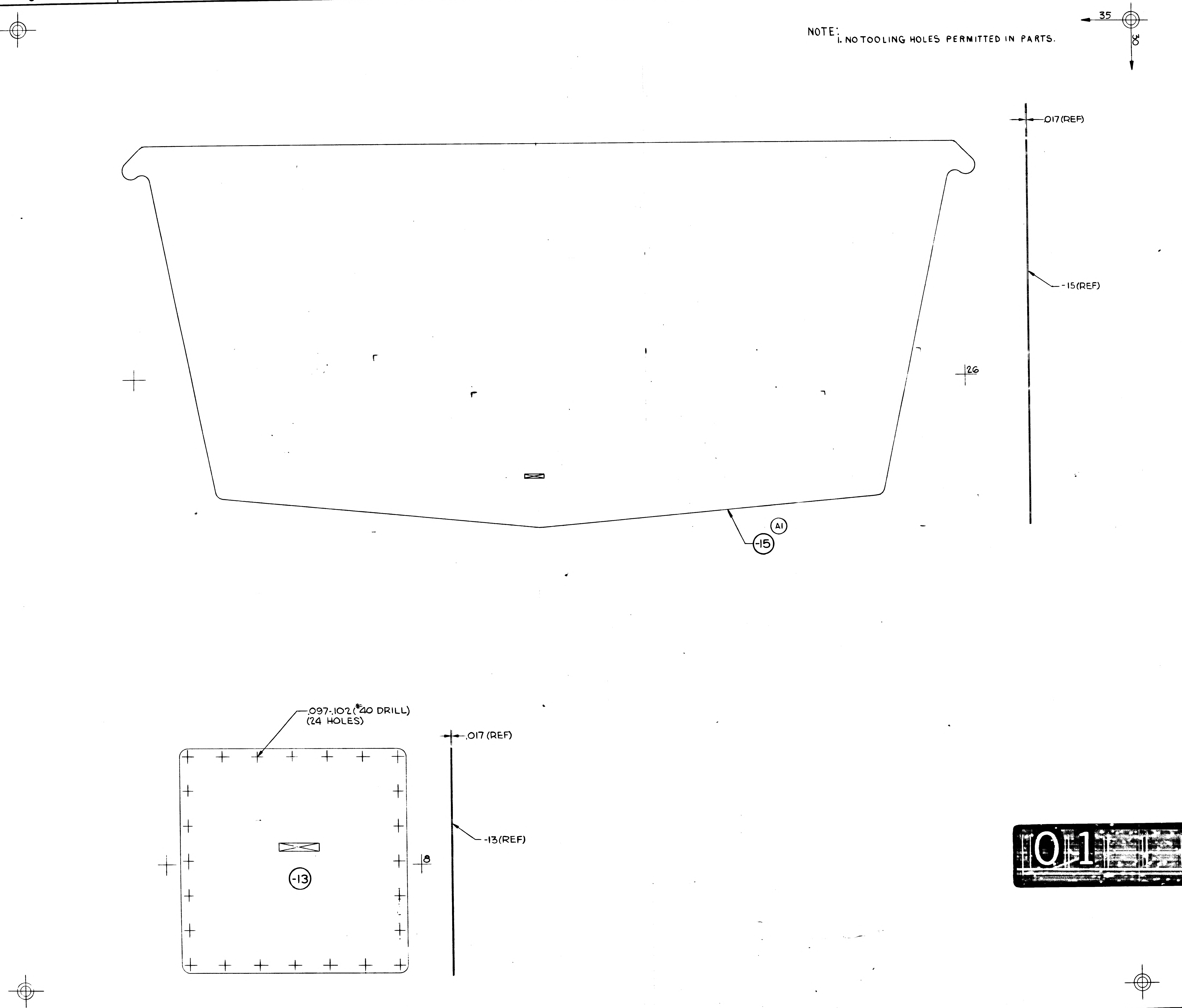
SIZE	CODE IDENT NO.		
B	26512	LDW280-18366	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.



01 NAS 9-1100

MANUFACTURING OPERATIONS

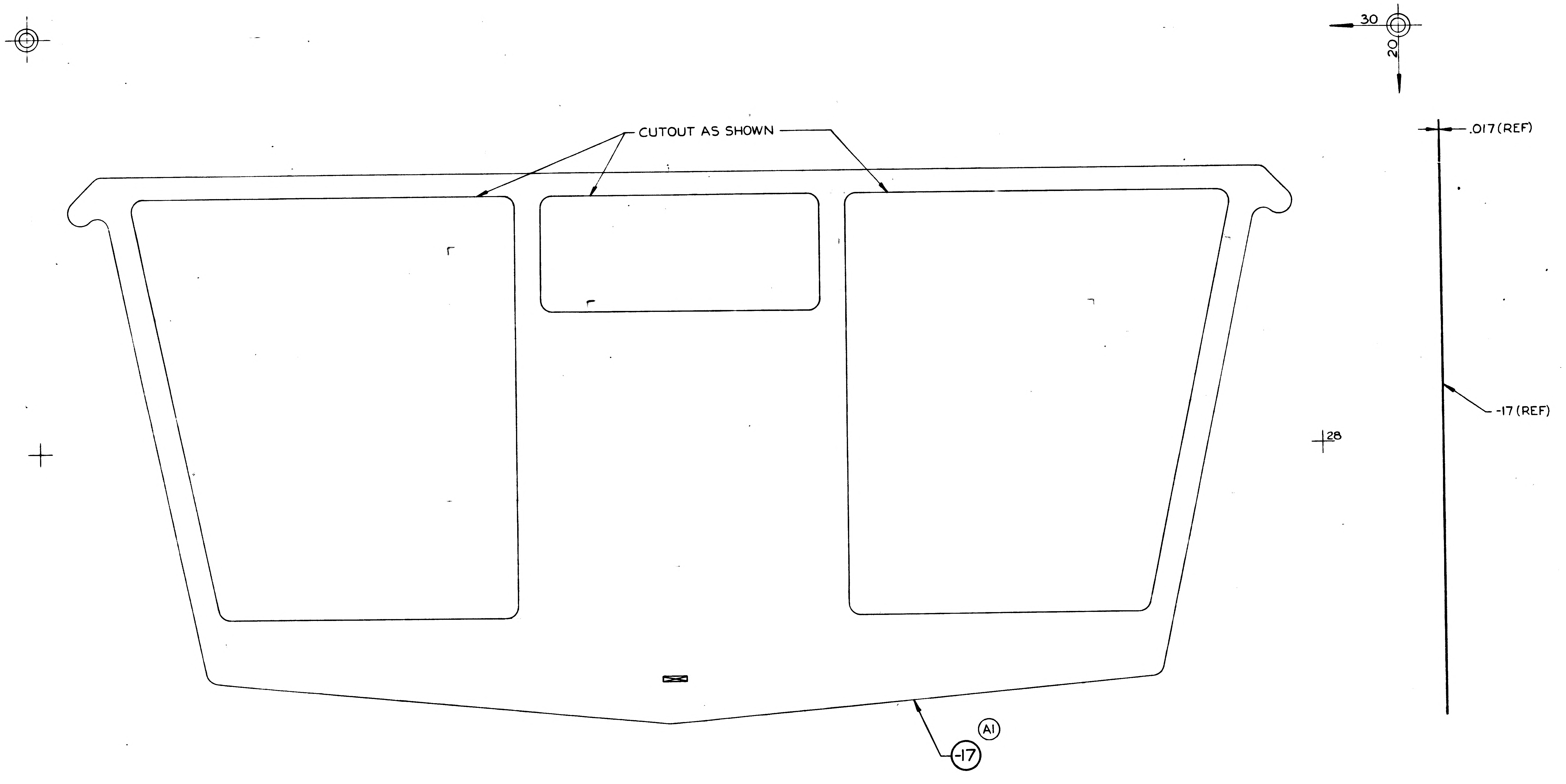
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	E	26512	LDW280-18366	A
SCALE FULL			SHEET 300	

FOR PHOTO REPRODUCTION 1



MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-ST 10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL ✓ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

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NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM MODEL OR END ITEM	SIZE F	CODE IDENT NO. 26512	LDW280-18366	A
	SCALE FULL		SHEET 4.00	

FOR PHOTO REPRODUCTION

K2

LDW280-18366 A

LDW280-18366 A

ENG 73-5 6-64

LDW280-18366 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52663	LM-4(34)	4
LM	↑	LM-3(33)	4
LM		LM-2(32)	4
LFM-32	↓	LM-1(31)	4
LM	LDW280-52663	LTA-5(15)	4

PART NO. LDW280-18366-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51517	LTA-5(15)	4
LM	LDW280-51517	LM-1(31)	4

PART NO. LDW280-18366-13 GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23663	LTA-5(15)	4
LFM-32	LDW280-23663	LM-1(31)	4

PART NO. LDW280-18366-15 GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. GAEC SCH NO.

WORK PACKAGE FUNCTION NO. 111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	A	A	A	A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO A	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-17	207	ME-1A 2/8/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE
LCD 1932

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A. MONTEMAGNO	RELIABILITY	
LAYOUT BY	G. BARNES		
CHECKED BY	D. FASS 7-27-67		
GR LEADER	J. STRAKOSCH		
VEH DES INT	G. Pusateri 7/27		
STRUCTURES	FEB 7/28/67	PROJ ENGR	7/29
STRUCTURES	Hillerman 7/29	REL GROUP	Batt. 7-31-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE - PROPELLANT GAGE
ACCESS COVER

SIZE	CODE IDENT NO.		
B	26512	LDW280-18366	A
SCALE	NONE	SHEET 1.00 OF 5	

ENG 77.1 12-65

7/26/67

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NAS 9-1100

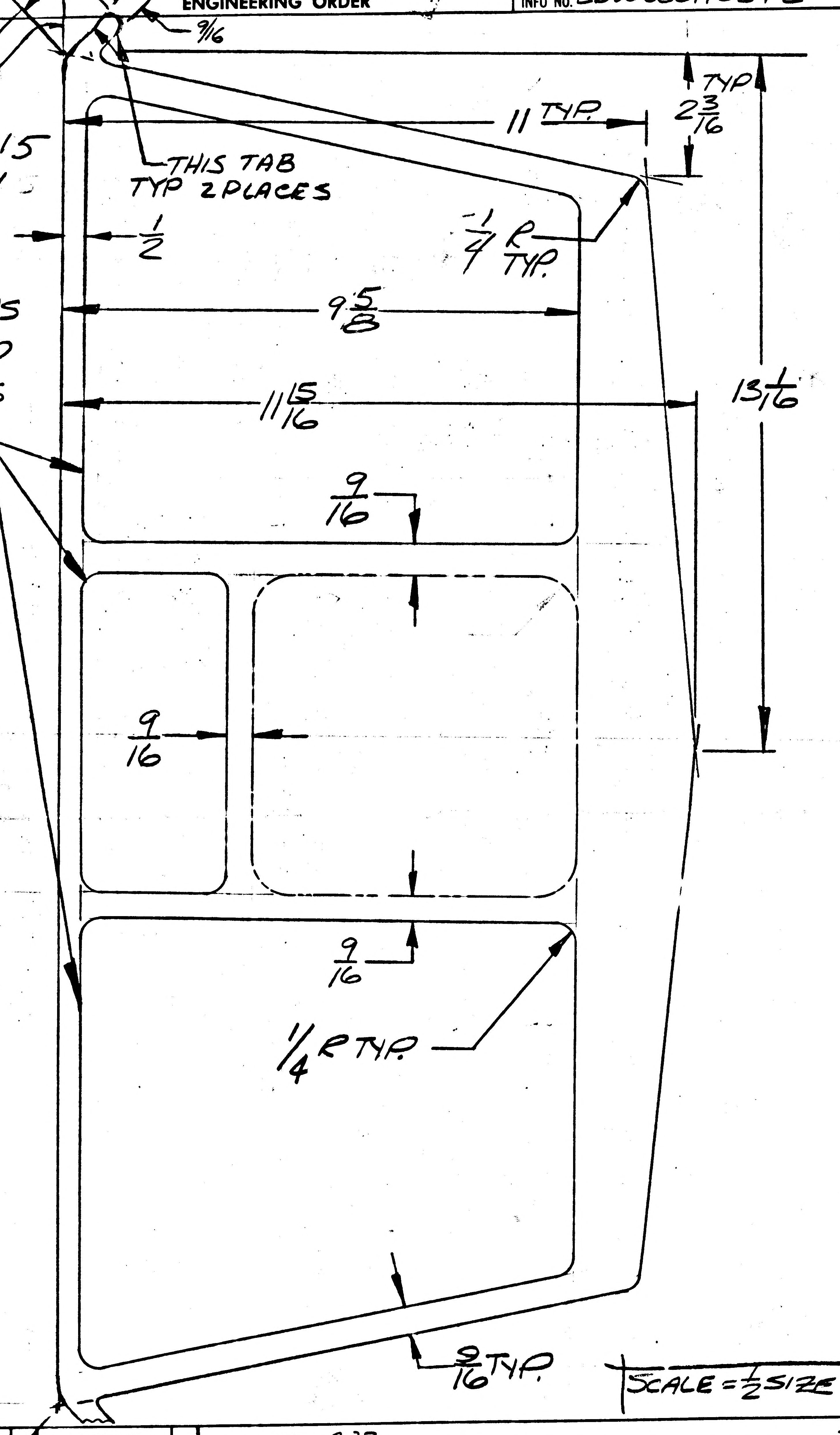
LFM Ⓐ

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-18366		EO NO. A1	
CONTROL INFO NO. LDW280A8342			

NOTES: ADD -15 IDENTICAL TO -11 EXCEPT AS SHOWN

(2) ADD-17, SAME AS -15, EXCEPT ADD THREE OPENINGS AS SHOWN



SCALE = 1/2 SIZE

LFM

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1932	5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
TO ACCOMODATE SPLICE REDESIGN FOR ACCESS TO P.Q.G.S. SYSTEM	~~REMOVED~~ -11, ADD -15, & -17	JK 8/4/7

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY~~ NO. E.I.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM-32	LM-1 (31)	
		LTA-5 (15)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			-11	DATE	8/3/67			8/3/67	8/3/67		8/3/67	8-4-67
REVISE DWG	RECORD EO	REWORK	SCRAP	8/3/67	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB, D/S, PQGS SYSTEM REMOVAL	LDW280-18366	A1

ISSUED BY J. RESER / J. STRAKOSCH (15) SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65 (A

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LOW280-18366 EO NO. A2
CONTROL INFO NO. LOW280A 8601

FOR LOW280-18366-17 DBLR.; INCREASE EFFECTIVITY AS SHN.

WAS LTA-5(15) & LM-1(31)
NOW LTA-5(15) + LM-1(31) THRU) LM-15(45)

IN N/A ADD: LOW280-52663
FOR-17 ONLY

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1932 5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
SHEET METAL ~~GAGE~~ TOO THIN FOR FLUSH ~~Hd.~~ RIVET REQTS,	ADDED LM-2(32) THRU LM-15(45) EFF. TO -17 DBLR.	JK 8/15/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-2(32) THRU LM-15(45)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT REQ'D	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	8/11/67			8/11/67	8/11/67		8/11/67	8-14-67
	VO1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB D/S, PQGS ACCESS	LOW280-18366	A2

ISSUED BY RESOR/STRAKOSCH X1641 SECTION VO1 GROUP NO. 335 PL 25

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NAS 9-1100

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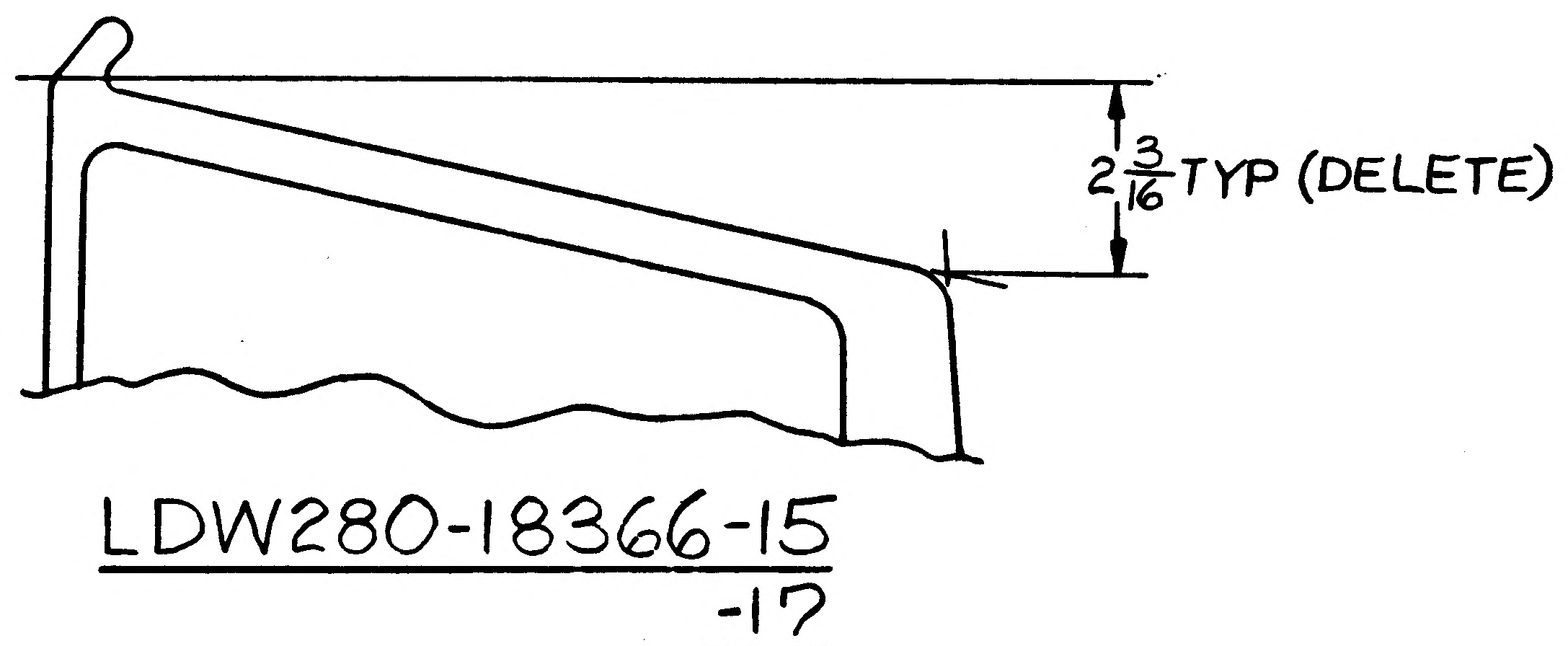
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18366		EO NO. A3
CONTROL INFO NO.	LM-2-3883	

THIS IS A REVISION Or EO-A1



LDW280-18366-15
-17

IN FLD OF EO, DELETE 2 3/16 TYP DIMENSION, DIM INCORRECT AS PER EXISTING CONTOUR OF EXISTING -11 (WHICH -15 & -17 ARE TO BE SIMILAR TO).

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1932

REASON FOR EO: (DRAWING CORRECTION ONLY) DIM REMOVED TO AGREE WITH EXISTING LOFT & TOOLING

DESCRIPTION OF EO: REFERENCE EO-A1 FOR -15 & -17, IN FLD DELETED 2 3/16 TYP. DIMENSION.

GAEC EO RELEASE: R JK 09025

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JaP			—	MBS	Ctf	WRB	Q
DATE	10/12/67			—	9/1/67	9/1/67	10/12/67	[illegible]

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	WEB ~ DESCENT STAGE PQGS SYSTEM ~ REMOVAL	LDW280-18366	A3

ISSUED BY LIAISON J. MALONEY 9/1/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LE0280 | EO NO. 910
CONTROL INFO NO. LDW280B2737

ON THE FOLLOWING DRAWINGS REVISE EFFECTIVITIES FOR THE FOLLOWING DASH NUMBERS *

DWG. NO. *	REMOVE **	EFFECTIVITY (WAS) ***	CHG NO.
LDW280-17543-23	LM-5(35)	LTA-5(15), LM-1(31) THRU LM-5(35)	B10
↑ -17543-25	↑	LM-2(32) THRU LM-5(35)	
-17543-27		LM-2(32) THRU LM-5(35)	
-18365-15		LTA-5(15), LM-1(31) THRU LM-5(35)	A4
-18366-17		LTA-5(15), LM-1(31) THRU LM-5(35)	A5
↓ P18133-11	↓	LTA-3DIR(46), LM-1(31) THRU LM-5(35)	A7
LDW280P18133-13	LM-5(35)	LM-2(32) THRU LM-5(35)	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD2532 PKG1(Δ) & LCD 2637 PKG2 (●)	⑤

REASON FOR EO: PQGS ACCESS DOOR REDESIGN

DESCRIPTION OF EO: FOR *
REMOVED: EFFECTIVITY **
EFFECTIVITY (WAS) ***

GAEC EO RELEASE: H.F. 4/3/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY	JAS			RBF	W/H	JAP	JM
DATE	3/29/68			3/29/68	4/1/68	4/1/68	4-2-68
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: "SEE DWG"
DRAWING NO.: LEO 280
EO NO.: 910

ISSUED BY D.SHAPIRO/P.THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25
CDR 032868

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NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00 1.10 2.00 3.00		LFM-32					INC EO A1 ADDED SH. 1.10	LM-2 THRU LM-15			F. ROTH 2-25-69		
	2	1.00 1.10 2.00 3.00							INC EO A2						
	3	1.10							INC EO A3	NOT REQD					
	4	1.00 1.10 2.00 3.00		S					INC EO A4	LM-5 THRU LM-15					
	5	1.00 1.10		LFM200					INC EO A5	LM-6 THRU LM-15 & LM-5 DVT(70)					
	6	1.00 1.10							INC LEO 280-1176	LM-5			E.C.G.		
	7	3.00		LFM-32		✓		LCD 1932 ④	REF EO A1 & A2 ADDED 1/2 DIM. wm Szalwinski	LM-2 THRU LM-15	NOT	REQD	H.D.	F. Zukas 2-25-69	3-18-69

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY				
A	GB 3-12-69	3/12/69		3/17/69						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18367	A

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18367 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66514	DVT (70)	1
LFM200	↕	SEE NOTE 4	4
LM		LM-15(45)	4
		THRU	
LM	LDW280-66514	LM-6(36)	4
PART NO. LDW280-18367-21		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51517	LM-4(34)	4
↕	↕	LM-3(33)	4
LM	LDW280-51517	LM-2(32)	4
PART NO. LDW280-18367-13		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52663	LM-4(34)	4
↕	↕	LM-3(33)	4
LM	LDW280-52663	LM-2(32)	4
PART NO. LDW280-18367-19		GAEC SCH NO. 52	

WORK PACKAGE FUNCTION NO. 111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-21	PRIM NO. 207	JK(001) ME-16A-3/18/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 1932

OK

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	S. JOHNSON	RELIABILITY	
LAYOUT BY	G. BARNES		
CHECKED BY	D. FASS 7-27-67		
GR. LEADER	J. STRAKOSCH		
VEH DES INT	G. Pirsten 7/27		
STRUCTURES	W/H 7/26	PROJ ENGR	W. F. Bischoff 7/28
STRUCTURES	Hilderman 7/29	REL GROUP	Botti 7-31-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE - PROPELLANT GAGE
ACCESS COVER

SIZE	CODE IDENT NO.		
B	26512	LDW280-18367	A
SCALE NONE		SHEET 1.00 OF 4	

3.77.1 12-65

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NAS 9-1100

7

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18367-21	E	COVER	TITANIUM SH	MIL-T-9046-D TYPE III COMP C	6Al-4V ANNEALED	(SEE NOTE 2) 10 x 10 1/8	CM	NONE	
		-19	E	WEB				.017 x 15 x 30			
		LDW280-18367-13	E	COVER	TITANIUM SH	MIL-T-9046-D TYPE III, COMP C	6Al-4V ANNEALED	(SEE NOTE 2) 10 1/8 X 10 1/8	CM	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						CM	CHEM MILLING	LSP14-26300

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18367	A

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

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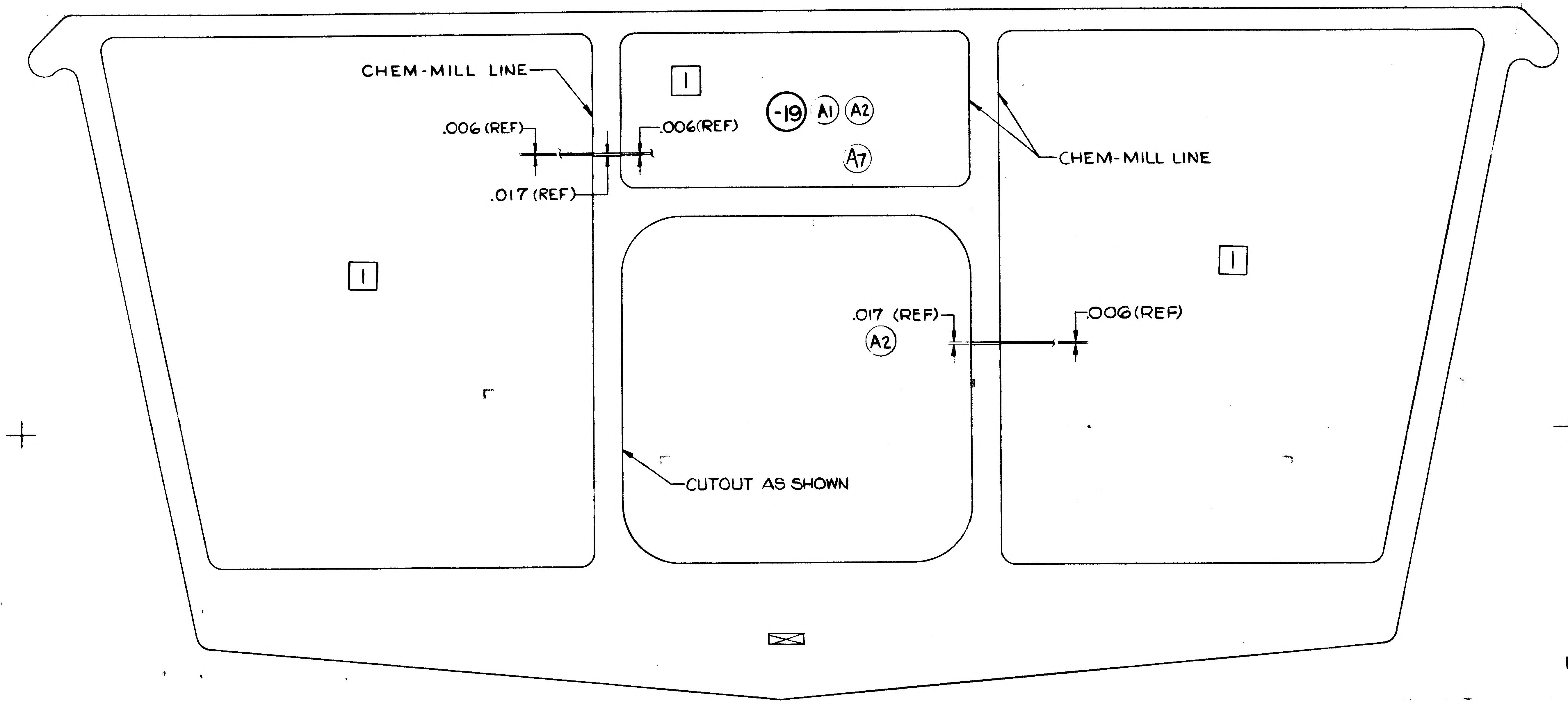
NAS 9-1100

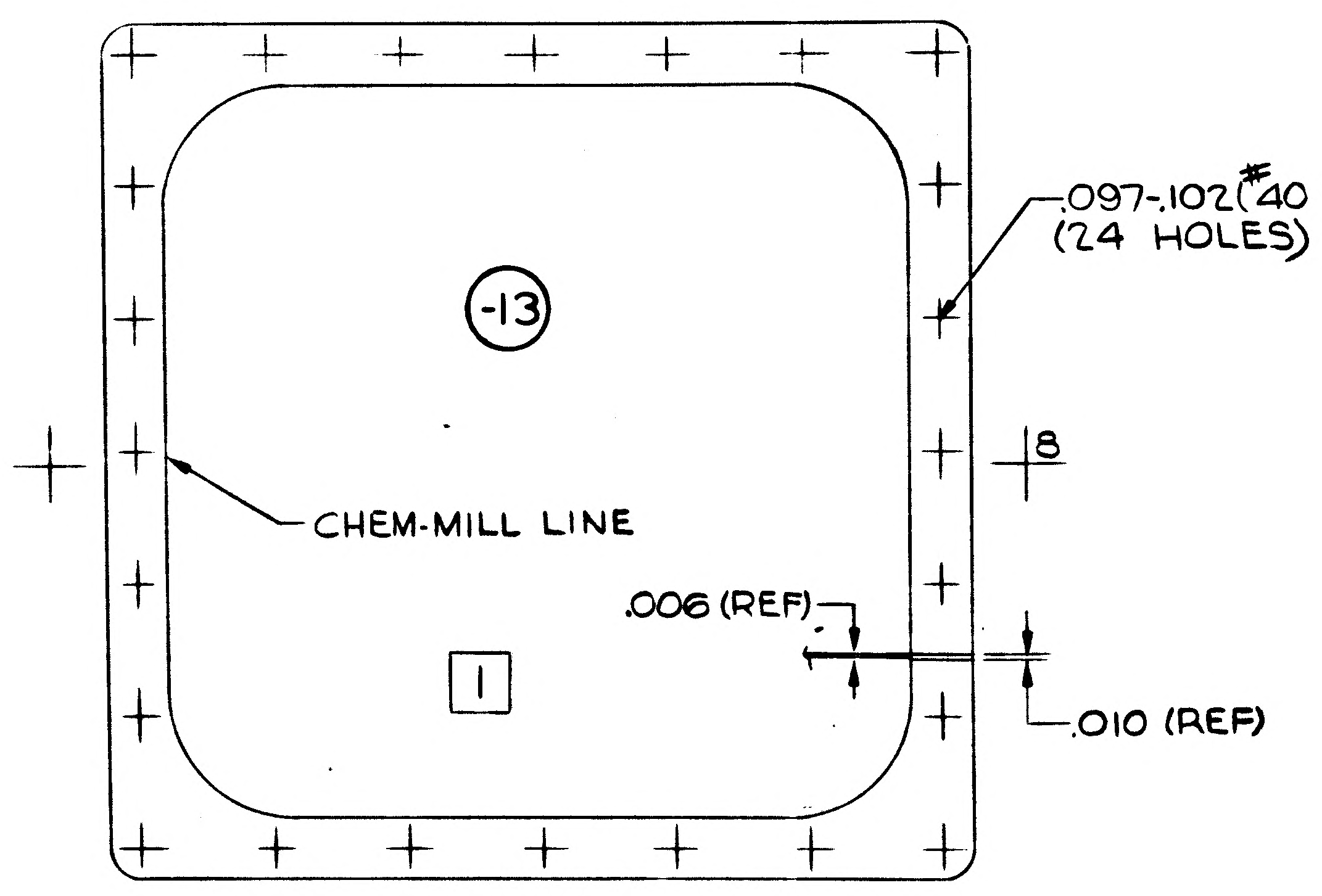


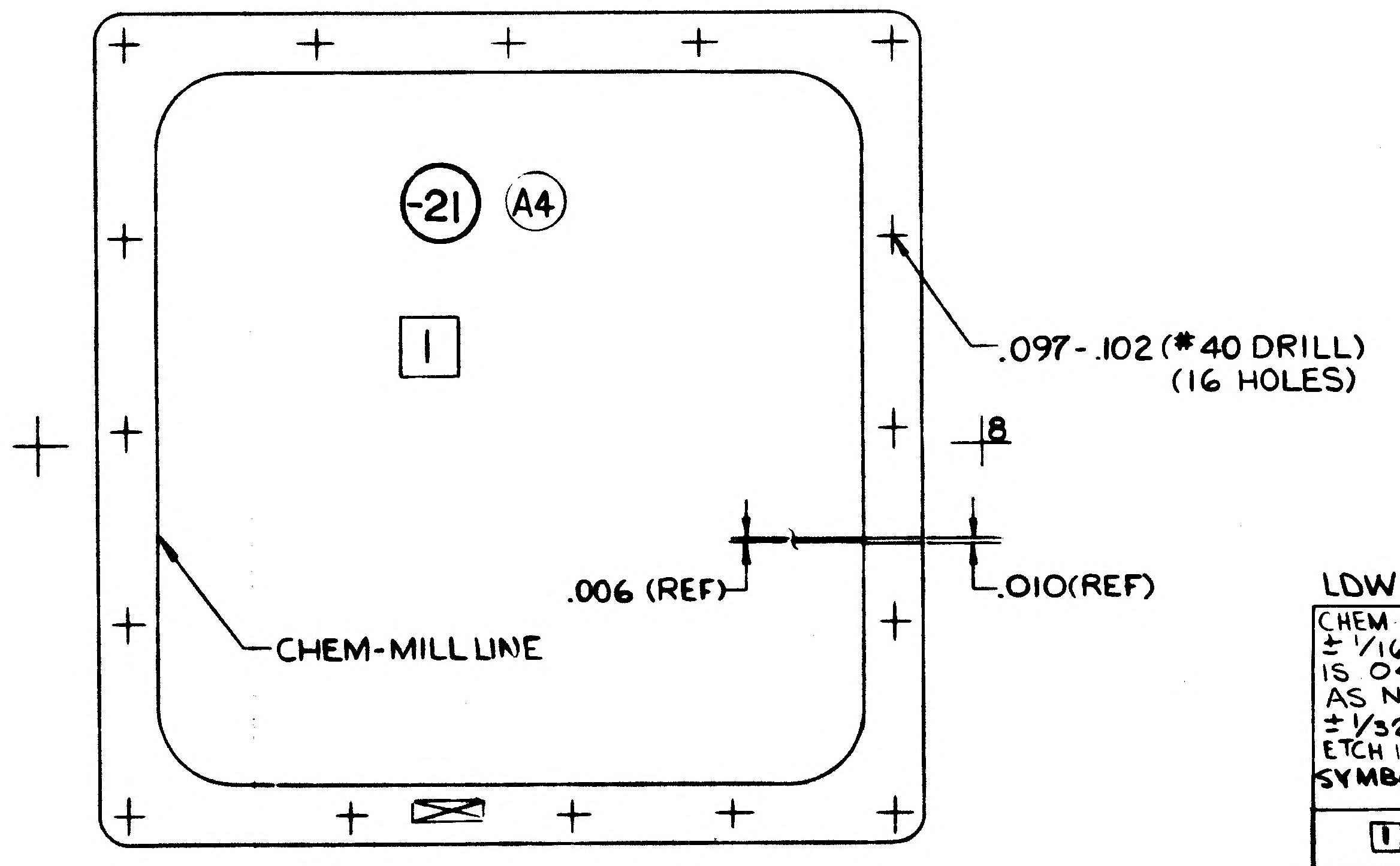
MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS
2. THICKNESS OF RAW MATERIAL FOR -13 & -21 BEFORE ETCH SEQUENCE SHALL BE .017.
   -13 & -21 TO BE SIZED TO .010 ± .003 THICKNESS SHALL NOT VARY BY MORE THAN .003 TOTAL OVER ENTIRE SHEET.
3. WEIGHT OF -19 CHEM-MILL WEB AFTER FINAL TRIM SHALL NOT EXCEED POUNDS.
   WEIGHT OF -13 & -21 CHEM-MILL COVERS AFTER FINAL TRIM SHALL NOT EXCEED POUNDS.
4. THIS DWG AFFECTED BY LFM 200 WHICH MAY BE USED ON LM-5(35)

01 NAS 9-1100





LDW280-18367-13 & -21

CHEM-MILL LINE TOLERANCE
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.006 ± .002	.004(REF)

LDW280-18367-19

CHEM MILL LINE TOLERANCE
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.006 ± .002	.011 (REF)

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE E	CODE IDENT NO. 26512	LDW280-18367	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION 1

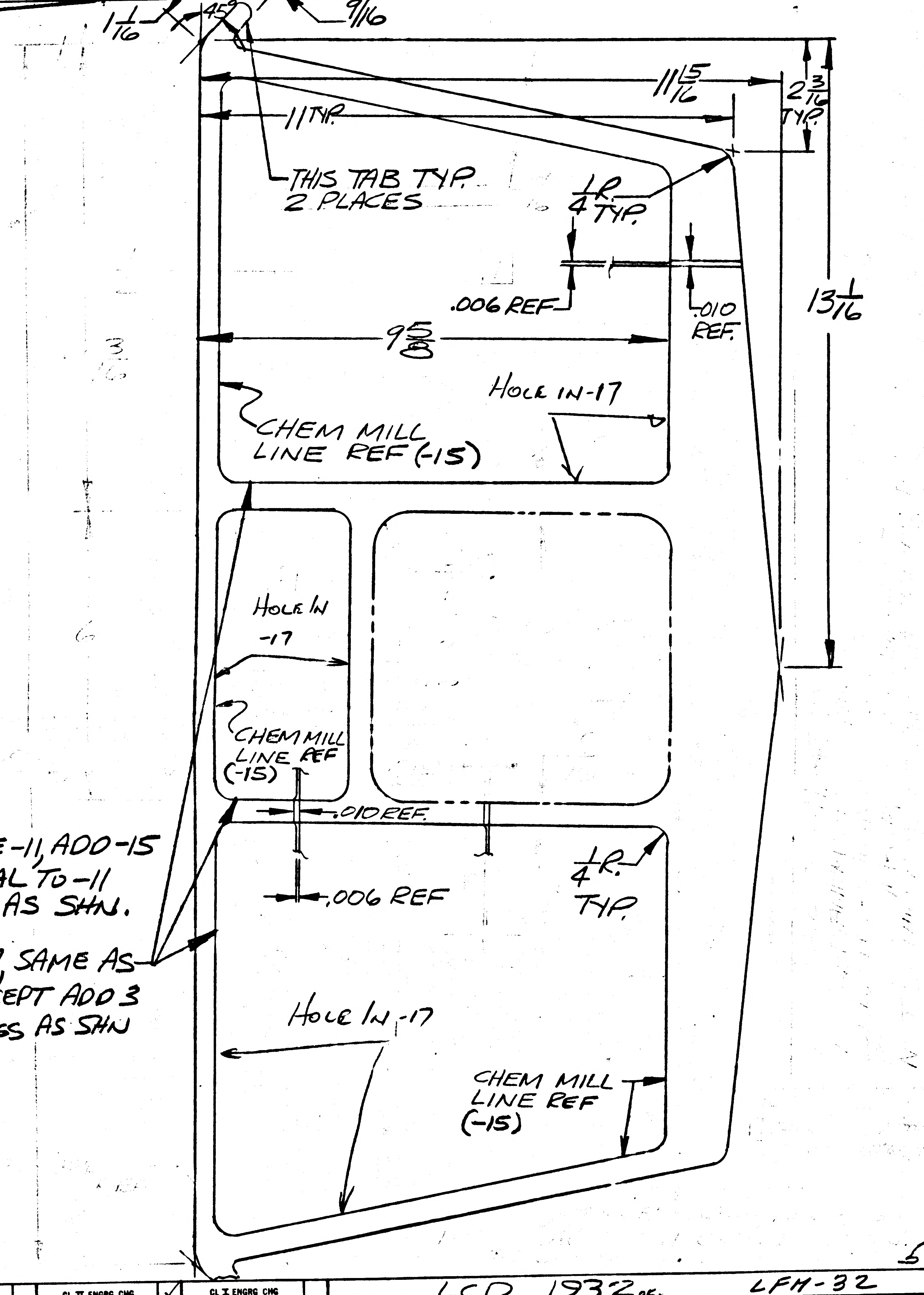
K2

LDW280-18367 A

LFM

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-18367 | EO NO. A1
CONTROL INFO NO. LDW280A8343



1 1/16
45°
9/16
11 TYP.
11 5/16
2 3/16 TYP.
13 1/16
THIS TAB TYP. 2 PLACES
1/4 R. TYP.
.006 REF
.010 REF.
9 5/8
HOLE IN -17
CHEM MILL LINE REF (-15)
HOLE IN -17
CHEM MILL LINE REF (-15)
.010 REF.
.006 REF
1/4 R. TYP.
HOLE IN -17
CHEM MILL LINE REF (-15)
5

NOTES:
(1) REMOVE -11, ADD -15 IDENTICAL TO -11 EXCEPT AS SHN.
(2) ADD -17, SAME AS -15 EXCEPT ADD 3 OPENINGS AS SHN

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	LCD 1932 ok. LFM-32

REASON FOR EO: SPLICE JOINT REDESIGN FOR ACCESS TO P.Q.G.S. SYSTEM

DESCRIPTION OF EO: REMOVED -11, ADDED -15 & -17

Ⓡ GAEC EO RELEASE C: JK 8/8/7

MODEL	PROCURING ACTIVITY NO.	E.I	SUB CONTR UNIT NO
LM	LM-2(32) THRU LFM-32		
	LM-15(45)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-11

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	[illegible]			[illegible]	W [illegible]		[illegible]	[illegible]
DATE	8/7/67			8/7/67	8/7/67		8/7/67	[illegible]
	VD1							

PRIORITY: C

DRAWING TITLE: WEB, D/S, P.Q.G.S. SYSTEM REMOVAL

DRAWING NO.: LDW280-18367

EO NO.: A1

8/11
ISSUED BY ~~RESER~~/STRAKOSCH X1153 SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

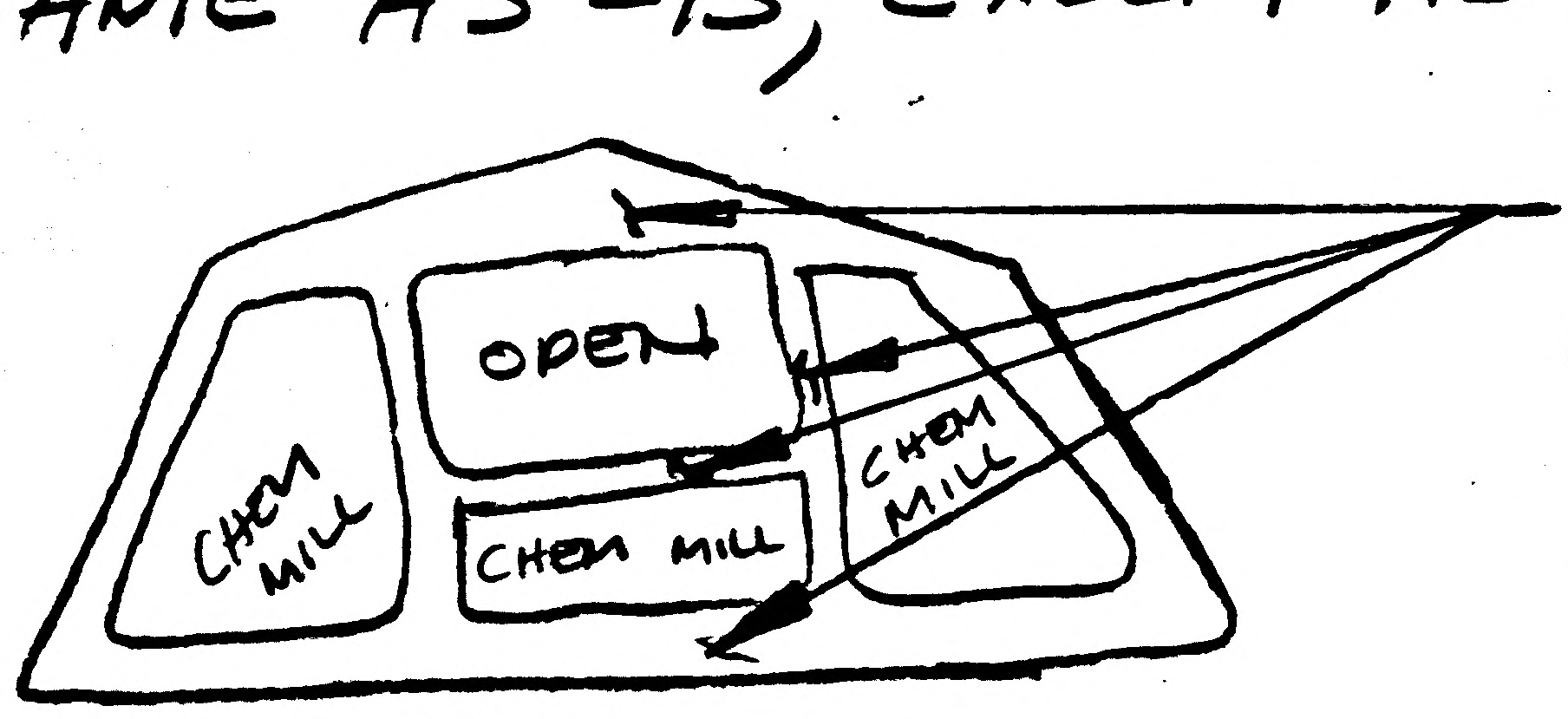
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LOW280-18367
EO NO. A2
CONTROL INFO NO. LOW280A8602

ADD LOW280-18367-19, REMOVE LOW280-18367-15 &
REMOVE LOW280-18367-17

-19 SAME AS -15, EXCEPT AS SHN:



ALL CHEM MILL LANDS:
WAS .010t, NOW .017t

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

LCD 1932

REASON FOR EO: SHEET METAL GAGE TOO THN FOR FLUSH HD. RIVET REQTS.

DESCRIPTION OF EO: ADDED -19, CANCELED -15, -17

GAEC EO RELEASE: JK 8/15/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-2(32) THRU LM-15(45)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-15 -17

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	8/11/67			8/11/67	8/11/67		8/10/67	8-14-67
	VD1							

PRIORITY: C
DRAWING TITLE: WEB D/S, PQGS ACCESS
DRAWING NO.: LOW280-18367
EO NO.: A2

ISSUED BY: RESER/STRAKOSCH X1641 SECTION: VD1 GROUP NO. 335 PL 25

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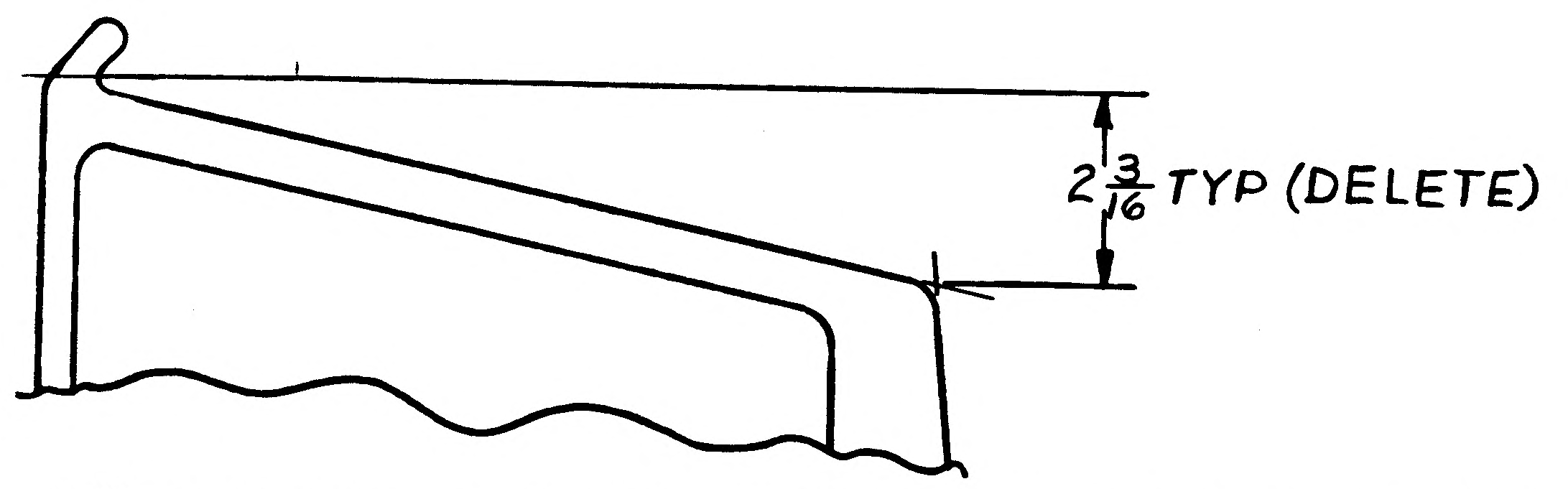
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18367		EO NO. A3	
CONTROL INFO NO.	LM-2-3882		

THIS IS A REVISION OF EO-A1



LDW280-18367-19 (REF EO-A2 WAS -15)

IN FLD OF EO, DELETE 2 3/16 TYP DIMENSION. DIM INCORRECT AS PER EXISTING CONTOUR OF EXISTING -11 (WHICH -19 IS TO BE SIMILAR TO).

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	LCD 1932

REASON FOR EO: (DRAWING CORRECTION ONLY) DIM REMOVED TO AGREE WITH EXISTING LOFT & TOOLING

DESCRIPTION OF EO: REFERENCE EO-A1 FOR -19 WEB, IN FLD DELETED 2 3/16 TYP DIMENSION.

GAEC EO RELEASE: JK 10/2/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY		
LM		NOT REQD	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQD
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	Jap			—	OBS	Ctf	WEB
DATE	10/12/67			—	9/1/67	9/1/67	10/12/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	WEB~DESCENT STAGE PQGS SYSTEM~REMOVAL	LDW280-18367	A3

ISSUED BY LIAISON J. MALONEY 9/1/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW-280-18367 | EO NO. A5
CONTROL INFO NO. LDW-280-B4285

FOR -21 REVISE N/A
LDW 280-66514 WAS LDW-280-51517, (4) REQ'D. EFF. LM-6 (36) THRU LM-15(45)

FOR-21,
ADD EFF. LFM 200 LM-5 (35) N/A LDW 280-66514 (4) REQ'D./MODULE

FOR-21
ADD EFF. DVT 70 N/A LDW 280-66514, (1) REQ'D./MODULE

LFM

ADD NOTE * "THIS DWG. AFFECTED BY LFM 200 WHICH MAY BE USED ON LM-5 (35)

* USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 2965 PKG 1 (CCA 1235) (5)

REASON FOR EO: BASE HEAT SHIELD REDESIGN FOR D/E THRUST DECAY

DESCRIPTION OF EO: FOR-21 REVISED N/A LDW-280-66514 WAS LDW 280 51517 EFF LM 6 (36) THRU LM 15 (45) ADDED EFF. LFM 200 LM 5 (35), ADDED EFF. DVT 70 ADDED NOTE *

GAEC EO RELEASE: C

MODEL	EFFECTIVITY: E1 ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6 (36) THRU	LM 15 (45)
LM	LFM 200	LM5 (35)	
LM		DVT (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓ REVISE DWG	RECORD EO	NOT REQD. REWORK	SCRAP	APPROVED BY								Bauman
				DATE	7/27/68	7/29/68		7/26/68	7/29/68		7/30/68	8-9-68
					VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COGS~~

PRIORITY: C
DRAWING TITLE: WEB - DESCENT STAGE PROPELLANT GAGE - ACCESS COVER
DRAWING NO. LDW-280-18367
EO NO. A5

08 02 68
ISSUED BY R. STILWELL / P. THORJUSEN X-1153 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1176
CONTROL INFO NO. LDW 280B 5631

CHG. LTR.	DRAWING No. *	RESTRICT FOR USE ON	WAS USED ON
A6	LDW280-18367 -21	LM-6(36) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).
A5	LDW280-18272 -13, -15, -17, & -19	LM-2(32) THRU LM-4(34), LM-6(36) THRU LM-15(45), LFM 200 LM-5(35)	LM-2(32) THRU LM-15(45), LFM 200 LM-5(35).
A2	LDW280-18590-11, -12 -13, -14, -20, -19, -21, -22	LM-6(36) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).
	LDW280-18590 -15, -17 -23	LM-6(36) THRU LM-15(45), LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45), & LFM 200 LM-5(35)
A2	LDW280-18592-11, -13 -14, -15, -16	LM-6(36) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45) LFM 200 LM-5(35) DVT(70)

FOR TITLE SEE DWG.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2965 PKG. 5 CCA 1235

REASON FOR EO: REDESIGN BASE HEAT SHIELD FOR D/E THRUST DECAY

DESCRIPTION OF EO: RESTRICTED EFF OF -* BY REMOVING LM-5(35) PRODUCTION EFF

GAEC EO-RELEASE

MODEL	EFFECTIVITY		
	LI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY							
DATE	10/21/68			10/19/68	10/22/68	10/22/68	10-23-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1176

CDR 10/25/68
ISSUED BY JOE LUCCHESI PR/G. ZEMAN x86046 SECTION V.D.I. GROUP NO. 335 PL 25

01
NAS 9-1100

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1337
CONTROL INFO NO. LDW280B7429

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.✱

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18358 ✓	A1	SEE DWG
-18359 ✓	A1	↑
-18360 ✓	A1	
-18361 ✓	A1	
-18362 ✓	B1	
-18363 ✓	A2	
-18364 ✓	A3	
-18365 ✓	A7	
-18367 ✓	B1	↓
LDW280-18368	B1	SEE DWG

✱ APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG54 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED. LM-15 (45) EFF FROM -✱

GAEC EO RELEASE: ✱[illegible]

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	[illegible]			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO.: 1337

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00,2.00 3.00		B					INC LEO 280-756 - ADDED SH. 1.10	LTA 3 LM-4 THRU LM-15 DVT (70)			W. VAN VORST 3-20-69		
	2	3.00		D					INC LEO 280-781						
	3	3.00		B					INC ED A3						
	4	1.00,2.00 3.00		G					INC ED A4	LM-4 THRU LM-15 DVT (70)					
	5	1.00&1.10							INC LEO 280-951	TM 5/R					

②

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18368	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18368 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54586	LTA-3(13)	1
PART NO. LDW280-18368-13		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54586	TM-5/R(65)	1
LM	LDW280-54586	DVT (70)	1
LM	LDW280-54586	LM-15 (45)	1
↑	↑	LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
↓	↓	LM-5 (35)	1
LM	LDW280-54586	LM-4 (34)	1
PART NO. LDW280-18368-13-1		GAEC SCH NO. 51-2	

WORK PKG FUNCTION #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00				
REV	A	A	A	A				
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

GRUMMAN REL INFO A

LAST DASH NO. USED -13-1

PRIM NO. VK(001) 207 ME-1A 3/28/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY LUNDSTEN 9/14/67
LAYOUT BY HALLER
CHECKED BY WCG 9/12/67
GR. LEADER 9/13/67
VEH DES INT G. Pusateri 9/13/67
STRUCTURES 9/13/67
STRUCTURES
WEIGHTS
RELIABILITY
PROJ ENGR D.G. McC 9/13/67
REL GROUP Batt. 9/13-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-SCIENTIFIC EQUIP
LH END CLOSURE

SIZE B
CODE IDENT NO. 26512
LDW280-18368 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 9-15-67

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18368-13-1	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.032x18x26	NOTE3	NOTE3	
								LDW280-18368-13	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.032x 18 x26	NOTE3	NOTE3	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18368	A

SCALE NONE

SHEET 2.00

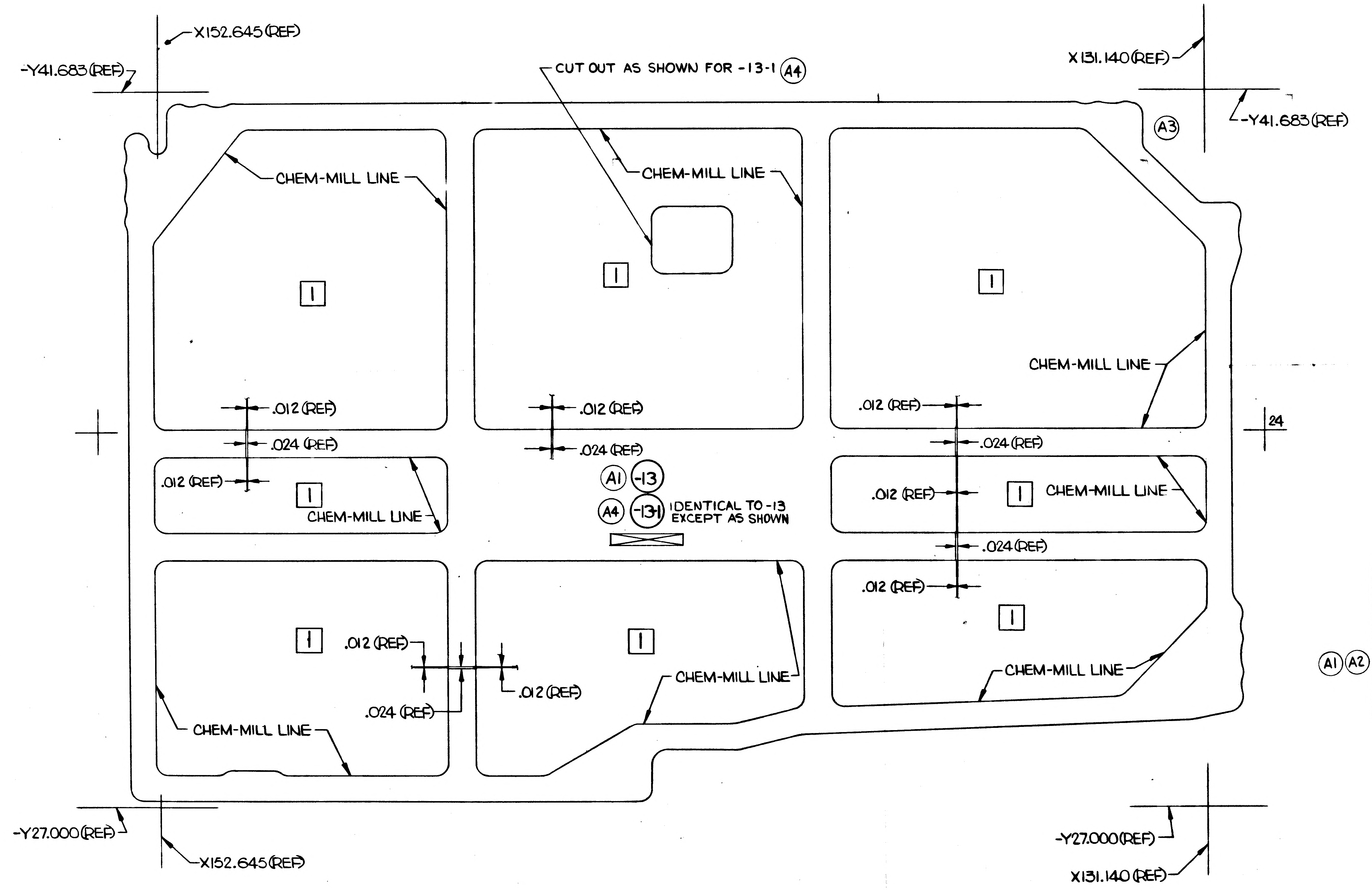
ENG 77.2 7-65

01

NAS 9-1100

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18368-13 & -13-1 IS SIMILAR TO LDW280-17708-13.
3. FABRICATE -13 & -13-1 PER LPC280-43



X152.645 (REF)
-Y41.683 (REF)
CUT OUT AS SHOWN FOR -13-1 (A4)
X131.140 (REF)
(A3)
-Y41.683 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
1
1
1
1
1
1
1
1
.012 (REF)
.024 (REF)
.012 (REF)
.012 (REF)
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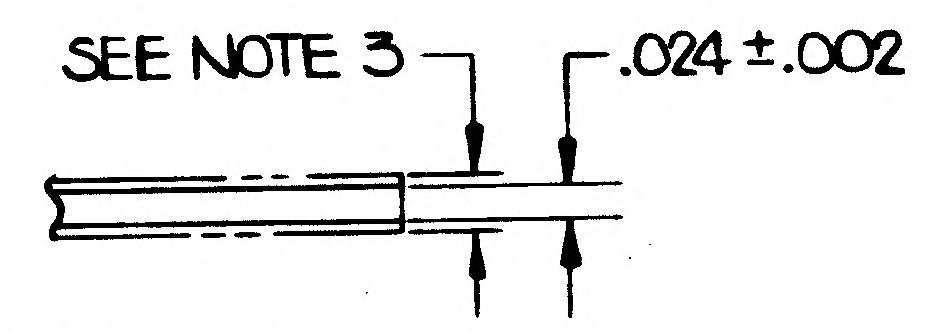
.012 (REF)
.012 (REF)
.024 (REF)
.012 (REF)
24
(A1) -13
(A4) -13-1 IDENTICAL TO -13 EXCEPT AS SHOWN
-Y27.000 (REF)
X152.645 (REF)
-Y27.000 (REF)
X131.140 (REF)



SEE NOTE 3
.024 ±.002

FOR ENGRG REF ONLY
NO SCALE

LDW280-18368-13 & 13-1

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

	SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
(A1) (A2)	1	$.012^{+.003}_{-.002}$	.012 REF

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18368 A

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM	SIZE F	CODE IDENT NO. 26512	LDW280-18368	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

ENG 73-5 6-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 756
CONTROL INFO NO. LDW280A9807

FOR THE FOLLOWING DRAWINGS, REMOVE DASH NOS. "A" AND REPLACE WITH DASH NO. "B". DASH NO. "B" IS IDENTICAL TO "A" EXCEPT FOR CHEM-MILL THICKNESS $.012^{+.002}_{-.002}$ WAS .015 ± .002, LTA-3 (13) REQM'TS. N/A AND QUANTITY SAME AS -11.

DWG NO	CHG NO.	TITLE	DASH NO. "A"	DASH NO. "B"
LDW280-18368 ✓	A1	SEE DWG	-11	-13
-18378 ✓	A1	↕	-11	-13
-18379 ✓	A1		-11	-13
-18381 ✓	A1		-11	-13
LDW280-18382 ✓	A1	SEE DWG	-11	-13

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 LCD 2220 CCA 586	3

REASON FOR EO: REDESIGN FOR ALSEP

DESCRIPTION OF EO: REMOVED AND REPLACED -"A" WITH -"B" ADDED LTA-3 (13) REQM'TS.

GAEC EO RELEASE: JK 10/17/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
LM	LM-4 (34) THRU LM-15 (45)		
LM	DESIGN VERIFICATION TEST (70)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	10/13/67			10-13-67	10/14/67		10/14/67	10/17/67
B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO. LEO 280
EO NO. 756

CDR 10-20-67
ISSUED BY MARZELLA A.F. MARZELLA SECTION VEHICLE DESIGN & INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 EO NO. 781
CONTROL INFO NO. LDW280A998E

FOR THE FOLLOWING DRAWINGS, REVISE CHEM-MILL TOLERANCES

$.012^{+.003}_{-.002}$ * WAS $.012 \pm .002$

	DWG NO.	DASH NO.	~~CHG~~ NO	TITLE	DEPTH OF CUT
✓	LDW280- 18368	-13	A2	SEE DWG	.012 (REF)
	LDW 280- 18378	-13	A2	SEE DWG	.008 (REF)
	LDW280- 18381	-13	A2	SEE DWG	.008 (REF)
	LDW280- 18340	-15	A3	SEE DWG	.044 (REF)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ LCD 1433CCA586, LCD 2220 CL II ① 5

REASON FOR EO: REDESIGN FOR ALSEP

DESCRIPTION OF EO: $.012^{+.003}_{-.002}$ WAS $.012 \pm .002$ FOR - *

GAEC EO RELEASE: JK 11/1/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-3 (13)	, LM-4 (34)	
	THRU	LM-15 (45)	
	& DVT (70)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE	10/24/67			10/24/67	11/24/67		10/3	10/31/67
REVISE DWG	RECORD EO	REWORK	SCRAP	D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 781

11/21
ISSUED BY R. GORTLER / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01

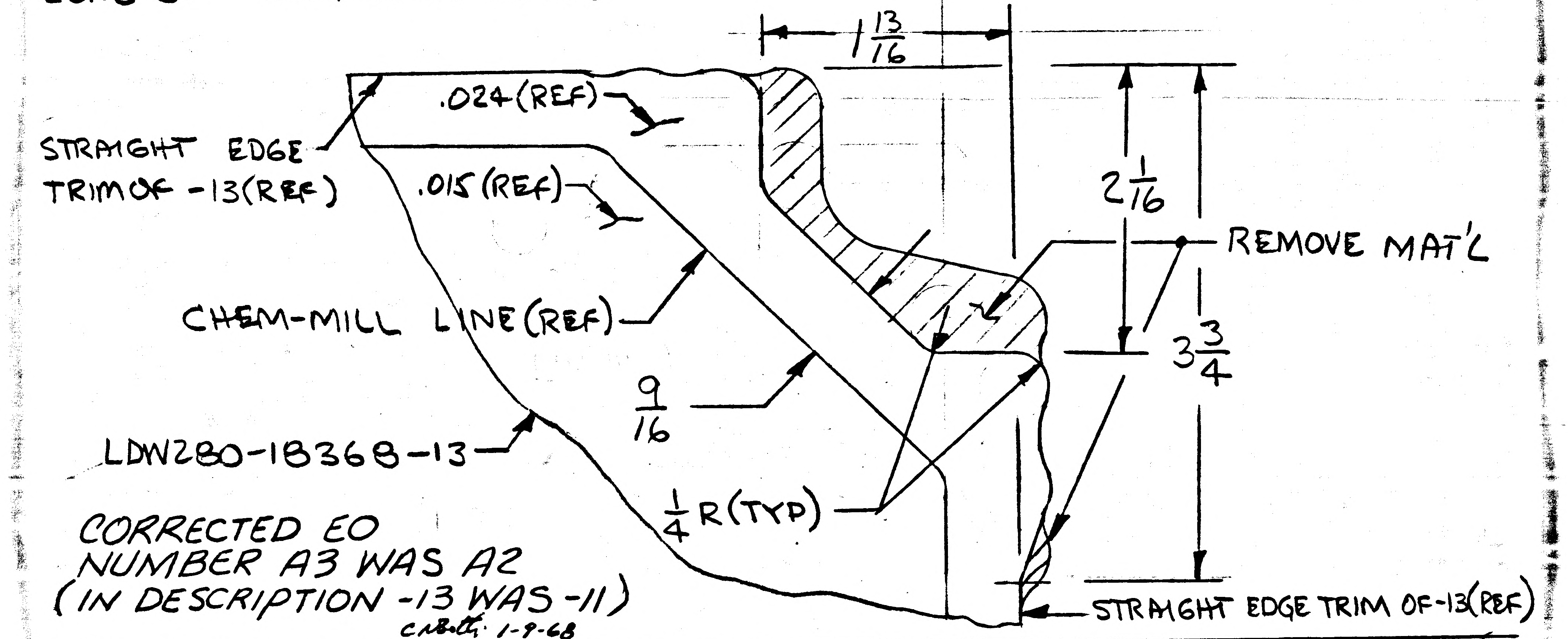
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18368 | EO NO. A3
CONTROL INFO NO. LDW280B 1150

ZONE 3F TRIM -13 AS NOTED


1 13/16
.024 (REF)
STRAIGHT EDGE TRIM OF -13 (REF)
.015 (REF)
2 1/16
REMOVE MAT'L
3 3/4
CHEM-MILL LINE (REF)
9/16
LDW280-18368-13
1/4 R (TYP)
STRAIGHT EDGE TRIM OF -13 (REF)

CORRECTED EO
NUMBER A3 WAS A2
(IN DESCRIPTION -13 WAS -11)
C.Botti 1-9-68

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA 586 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LOWER OUTB'D SPLICE REDESIGNED	TRIMMED -13	JK 1/9/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-4 (34)	THRU LM-15 (45)	
LM	LTA-3 (13)		
LM	DESIGN VERIFICATION	TEST (70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	1/8/68			1-8-68	1-8-68		1/8/68	1-8-68
B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GAEC~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB-DESCENT STAGE-SCIENTIFIC EQUIPMENT LH END CLOSURE	LDW280-18368	A3

1-9
ISSUED BY A.F. MARZELLA EXT 9505 SECTION VEH. DES. & INTEG. GROUP NO. 335 PL 25

01

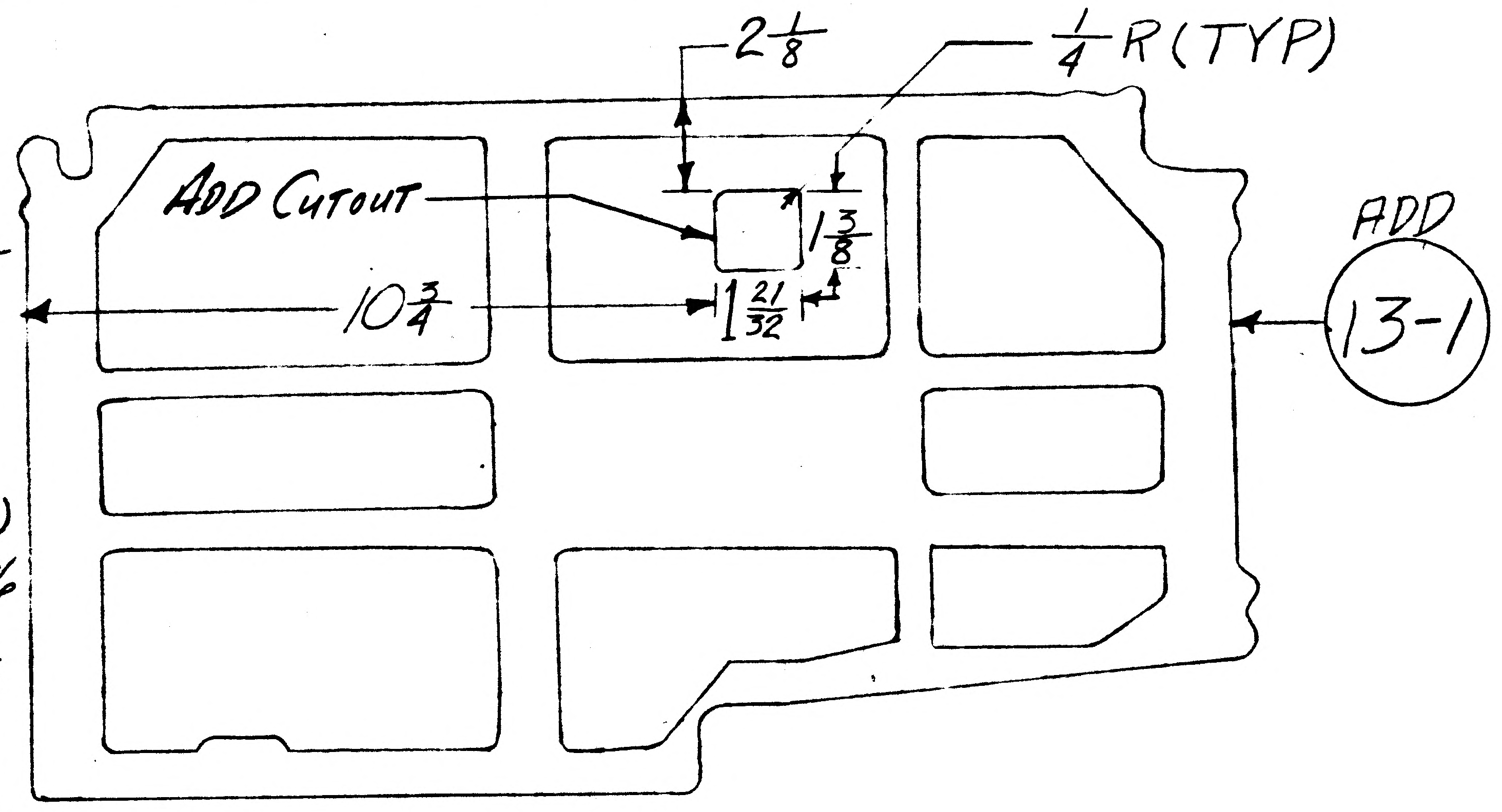
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW 280-18368 | EO NO. A4
CONTROL INFO NO. LDW 280 B2503

ADD
-13-1 IDENT.
TO -13 EXCEPT
AS NOTED



-13-1 EFF.
LM-4 (34) THRU
LM-15(45) & DVT (70)
N/A LDW280-54586
1 REQ. PER MOD.
ON -13 REMOVE
EFF. LM-4(34)
THRU LM-15(45),
& DVT (70)

- -13-1 MAYBE MADE BY REWORKING -13

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 CCA 586 PKG. 13 (5)

REASON FOR EO: ADD CUTOUT FOR CABLE RUN FOR SEQ. DOOR OPERATING MECHANISM.

DESCRIPTION OF EO: ADDED -13-1
ON -13 REMOVED EFF. LM-4(34) THRU LM-15(45) & DVT(70)

Ⓡ GAEC EO RELEASE: C VK 3/21/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	THRU
LM	LM-15 (45),	DVT (70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	3/14/68			3/13/68	3/19/68		3/19/68	3-19-68
G	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB D/S S.EQ. LH END CLOSURE	LDW 280-18368	A4

3-22-68
ISSUED BY T. COTTER x 3352 / P. THORJUSEN SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 951
CONTROL INFO NO. LDW280B3379

FOR THE FOLLOWING PARTS ADD TH-5/R(65)REQMTS NEXT ASSY LDW 280-54586 FOR THE QUANTITIES NOTED.

DWG NO. (*)	TITLE	REQ'D/MOD.	CHANGE NO.
LDW280-17709-23	SEE DRAWING	1	B8 ✓
LDW280-17710-11 -13 -15 -17 -19		1 1 2 4 2	A9 ✓
LDW280-17739-15		4	C6 ✓
LDW280-17887-15 -17		1 1	B5 ✓
LDW280-18368-13-1		1	A5 ✓
LDW 280-18369-11 -13 -15 -16 -21 -23		1 1 1 1 1 1	A3
LDW280-18458-15		1	A5
LDW 280-18515-11 -13		1 1	B1
LDW280-18558-11 -13 -15 -17		1 1 1 1	A2
LDW280M17969-12		1	A2
LDW280M71500-11		1	A1
LDW 280M71501-11		3	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA586 PKG 2J (5)

REASON FOR EO: ADD TH-5(65)REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TH-5/R(65)REQMTS.

GAEC C EO RELEASE: JK 5/18/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LH		TH-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY	JWS			BST	WH			
DATE	5/13/68			5-13-68			5/13/68	5-17-68

PRIORITY: C

DRAWING TITLE: SEE DRAWING

DRAWING NO.: LEO 280

EO NO.: 951

5-17-68
ISSUED BY G. HANSMANN X3352 SECTION V.D.I. GROUP NO. 280 PL 25

01 NAS 9-1100

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1337
CONTROL INFO NO. LC .1280B7429

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18358 ✓	A1	SEE DWG
-18359 ✓	A1	
-18360 ✓	A1	
-18361 ✓	A1	
-18362 ✓	B1	
-18363 ✓	A2	
-18364 ✓	A3	
-18365 ✓	A7	
-18367 ✓	B1	
LDW280-18368 ✓	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3587 PKG 54 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM *

GAEC EO RELEASE: [illegible]

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1337

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1552
CONTROL INFO NO. LDW 280B 8113

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW 280-18365	SEE DWG	B1
368		B2
369		A6
370		A5
372		A5
374		A5
375		A5
378		A5
379		A7
LDW 280-18380	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 32 & 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

Ⓡ GAEC EO RELEASE: 8-13-69 JK 8/15/9 Bauman 8/14/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	PBT				N		
DATE	7-29-69			7/29/69	8/2/69		8/7/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1552

8-26-69 ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1660
CONTROL INFO NO. LDW280B 8446

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS FOR THE NOTED NEXT ASSY. QUANTITY SAME AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW 280- 17709 ✓	SEE DRAWING	LDW280-54586	C3
-17887 ✓		-54586	C3
-18515 ✓		-54586	B4
-18368 ✓		-54586	B3
-18369		-54586	A7
-18458		-54679	B3
-18458		-54586	
18558		-54586	A7
LDW280 M18022		-54679	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3890 PKG 70 PG 4, 7, (5)

REASON FOR EO: ADDITION OF S.E.Q. BAY FOR TEST ARTICLE

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: SUB 8-22-69 | K 9/8/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NO | SCRAP [illegible]

APPROVED BY	PST							
DATE	8-8-69			8/11/69	8/12/69		8/12/69	8/1/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO.: LE0280 | EO NO.: 1660

8-27-69
ISSUED BY F. OLIVERI EXT 86048 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18369

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54586	DVT (70)	1 EA
LM	LDW280-54586	LM-15 (45)	1 EA
↑	↑	LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
↓	↓	LM-5 (35)	1 EA
LM	LDW280-54586	LM-4 (34)	1 EA
PART NO. LDW280-18369-11, -13, -15, -16, -17, -19		GAEC SCH NO. 51-2	

WORK PKG FUNCTION #110 3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-19	PRIM NO. 207	LK(00) MP-16 9/18/7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433, CCA 586

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	LUNDSTEN 9/14/67	RELIABILITY	
LAYOUT BY	HALLER		
CHECKED BY	D. FASS 9-9-67		
GR LEADER	9/14/67		
VEH DES INT	J. Pusateri 9/12/67		
STRUCTURES	M.S. 9/12/67	PROJ ENGR	W. Birch 9/1
STRUCTURES		REL GROUP	Botte 9/16/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ H_2O & N_2 FILL & DRAIN
DISCONNECT & H_2O MEAS DEVICE SPT

SIZE B | CODE IDENT NO. 26512 | LDW280-18369
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR - 9/15/67

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18369-19	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.024 x 3 x 5	T6	88	
								-17		BRACKET			7075	.024 x 3 x 5	T6	88	
								-16		ZEE			7075	.032 x 3 x 24	T6	88	
								-15		ZEE			7075	.032 x 3 x 24	T6	88	
								-13		ANGLE			7075	.028 x 2 x 15	T6	88	
								LDW280-18369-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.028 x 2 x 14	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18369

SCALE NONE

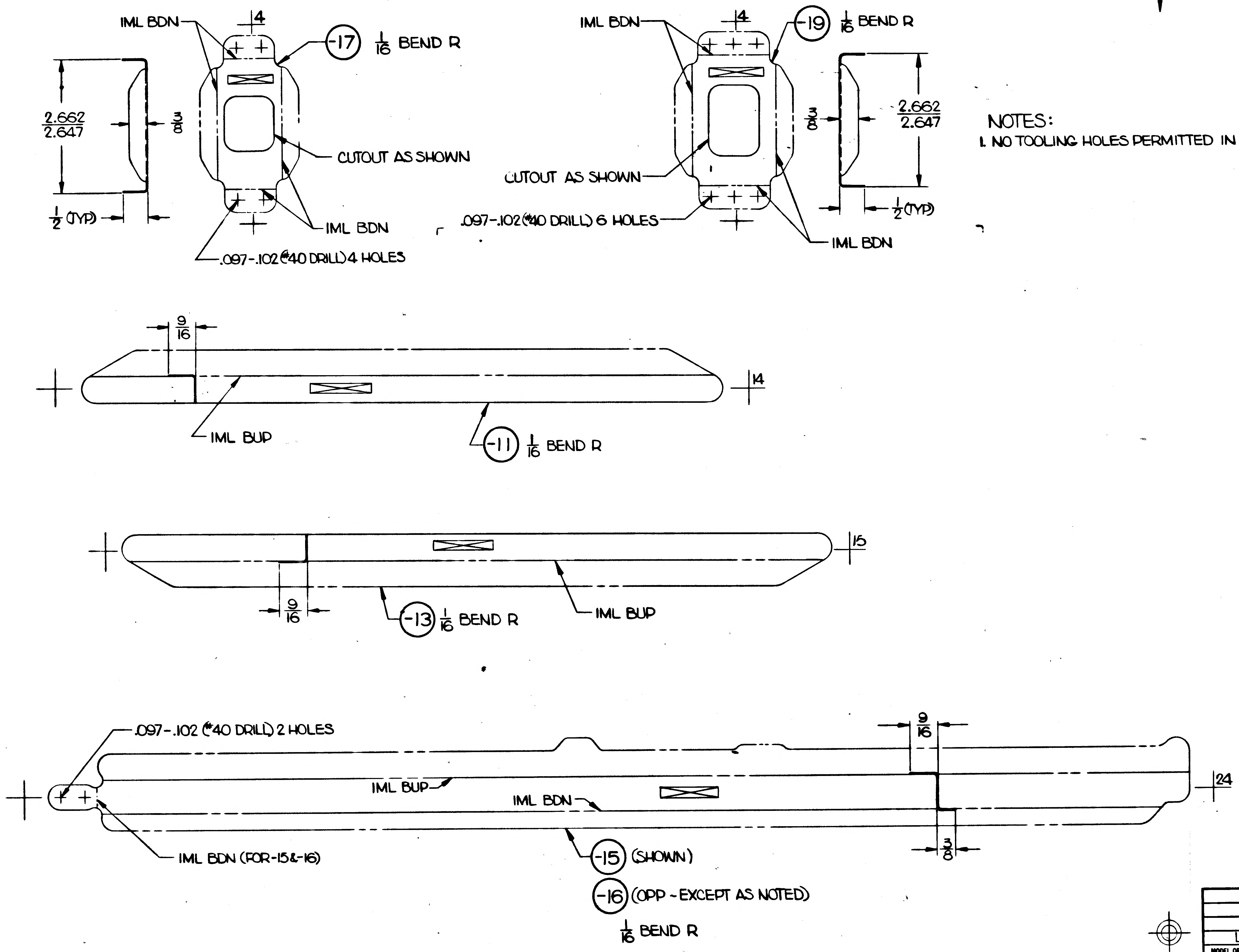
SHEET 2.00

⑦

ENG 77.2 7-65

01

NAS 9-1100


IML BDN
4
-17
1/16 BEND R
2.662
2.647
3/8
1/2 (TYP)
CUTOUT AS SHOWN
IML BDN
.097-.102 (#40 DRILL) 4 HOLES
IML BDN
4
-19
1/16 BEND R
2.662
2.647
3/8
1/2 (TYP)
CUTOUT AS SHOWN
.097-.102 (#40 DRILL) 6 HOLES
IML BDN
9/16
14
IML BUP
-11
1/16 BEND R
15
9/16
-13
1/16 BEND R
IML BUP
.097-.102 (#40 DRILL) 2 HOLES
9/16
IML BUP
IML BDN
24
IML BDN (FOR-15&-16)
3/8
-15 (SHOWN)
-16 (OPP - EXCEPT AS NOTED)
1/16 BEND R

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE D	CODE IDENT NO. 26512	LDW280-18369	
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18369

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 783
CONTROL INFO NO. LDW280A9815

ENG 32.2 REV 3-65

ADD LTA-3(13) EFFECTIVITY TO DASH NO.* OF THE FOLLOWING DWGS.:
QUANTITY SAME AS LM-4(34) THRU LM-15(45)

DWG. NO.	N/A	TITLE	CHG. NO.	DASH NO.*
LDW280-54510	LDW280-54509	SEE DWG.	E1	-1
M17741	-54576		A2	-11, -13
M17743	-54576		A2	-13
M17744	-54576		A2	-13
M17745	-54576		A2	-11, -12, -13
M17770	-54576		A1	-11
-17883	-23578		B5	-15, -17
-17295	-54576		B4	-13 -14 -19, -20 -21, -22, -23, -24, -25, -26
-18342	-54576		A1	-11, -13, -15, -17
-17623	-54566		B6	-17, -19
-18343	-54576		A1	-11, -13, -15, -17, -19
-18344	-54576		A1	-11, -13, -15, -17, -19
M17746	-54576		A1	-11
M17747	-54576		A2	-11
M17628	-54576		B2	-1
-18348	-54577		A1	-11, -13, -14, -15, -17, -18, -19
-18349	-54575		A1	-11, -12, -13, -14, -15, -16, -17, -18
-18350	-23634		A1	-11, -12
M17748	-54575		A2	-13
-18369	-54586		A1	-11, -13, -15, -16, -17, -19
-18346	-54575		A1	-11, -13, -15
-18356	-54575		A2	-13 -19, -21, -25, -26, -27
LDW280M17769	LDW280-54575	SEE DWG.	A1	-11

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 ok. CCA-586

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3(13) EFFECTIVITY TO DASH NO.*

GAEC C EO RELEASE: JK 11/1/67

MODEL	EFFECTIVITY: ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JAP			JMS	MH		WRP	
DATE	10/23/67			10/24/67	10/23/67		10/26/67	11-1-67
D	V.D.I.							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 783

10/27 ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

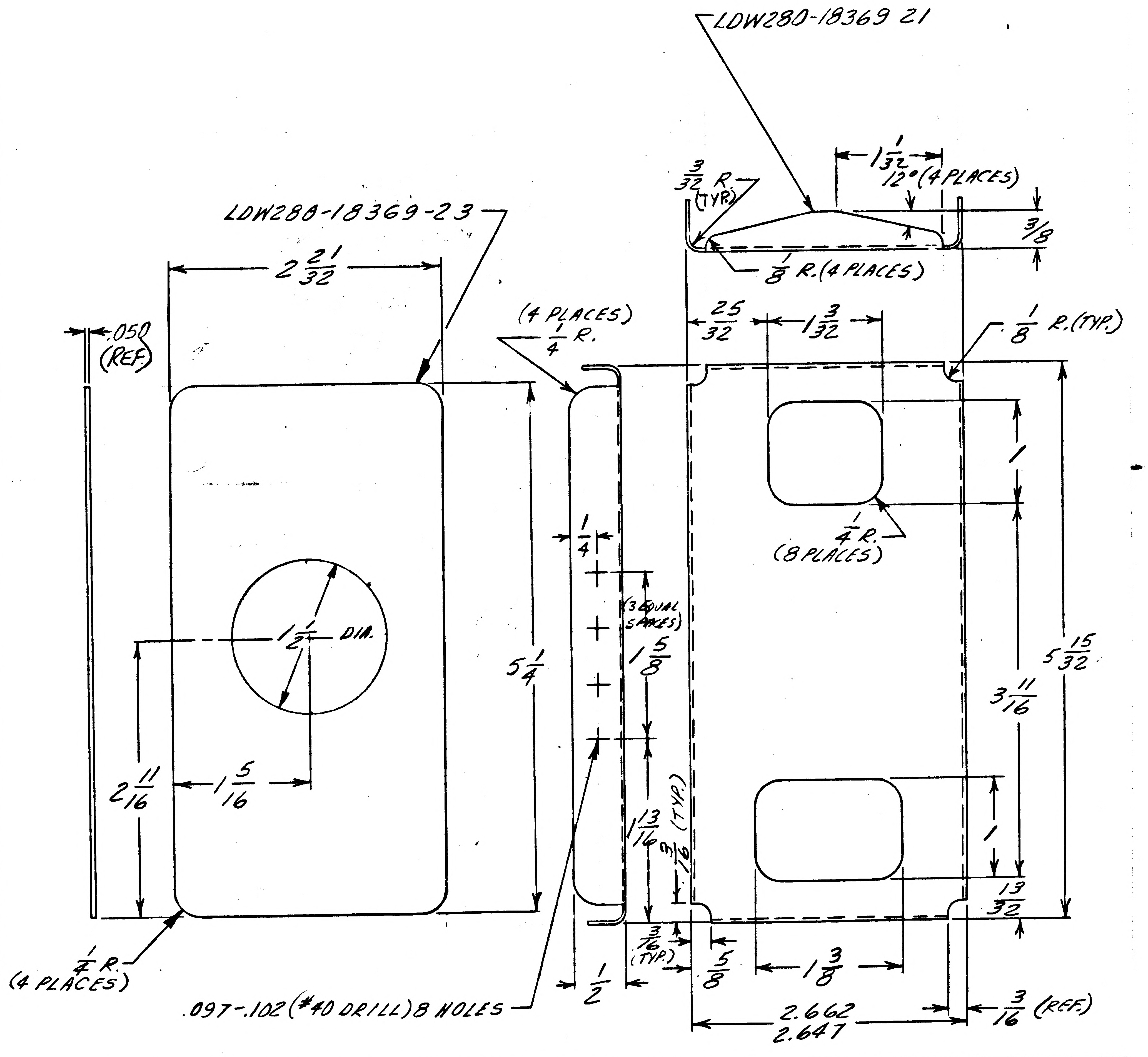
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18369		EO NO. A2
CONTROL INFO NO. LDW280B2415		

REMOVE -17 & -19, ADD -21 & -23 AS SHOWN.

ADD
LDW280-18369-21 BRACKET (1 REQ'D.) AL. ALLOY 7075 (HT. TR. TO T6), QQ-A-250/12 (.032 THK.)
FIN. #88 ~ N/A LDW280-54586 ~ LTA-3, LM-4 THRU LM-15 & DVT(70)

LDW280-18369-23 DOUBLER (1 REQ'D.) AL. ALLOY 7075 (HT. TR. TO T6), QQ-A-250/12 (.050 THK.)
FIN. #88 ~ N/A LDW280-54586 ~ LTA-3, LM-4 THRU LM-15 & DVT(70)



LDW280-18369 21
LDW280-18369-23
$1\frac{1}{32}$
12° (4 PLACES)
$\frac{3}{32}$ R. (TYP.)
$\frac{3}{8}$
$\frac{1}{8}$ R. (4 PLACES)
$2\frac{21}{32}$
.050 (REF.)
(4 PLACES) $\frac{1}{4}$ R.
$\frac{25}{32}$
$1\frac{3}{32}$
$\frac{1}{8}$ R. (TYP.)
$\frac{1}{4}$ R. (8 PLACES)
$\frac{1}{4}$
(3 EQUAL SPACES)
$1\frac{5}{8}$
$1\frac{1}{2}$ DIA.
$5\frac{1}{4}$
$5\frac{15}{32}$
$3\frac{11}{16}$
1
1
$2\frac{11}{16}$
$1\frac{5}{16}$
$\frac{13}{16}$
$\frac{3}{16}$ (TYP.)
$\frac{13}{32}$
$\frac{3}{16}$ (TYP.)
$\frac{5}{8}$
$1\frac{3}{8}$
$\frac{1}{4}$ R. (4 PLACES)
.097-.102 (#40 DRILL) 8 HOLES
$\frac{1}{2}$
2.662
2.647
$\frac{3}{16}$ (REF.)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA-586							(6)
REASON FOR EO					DESCRIPTION OF EO								GAEC C EO RELEASE
RELOCATION OF WATER DRAIN & LINES					REMOVED -17 & -19. ADDED -21 & -23.								YK 3/
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					
	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~	✓			-17 -19	DATE			2/29/68	2/27/68	2/29/68 3/14/68
LM	LTA-3(13), LM-4(34) THRU LM-15(45) &			REVISE DWG	RECORD EO	REWORK	SCRAP	G	Y.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP
	DESIGN VERIFICATION TEST (70)			PRIORITY C	DRAWING TITLE ANGLE ~ DESCENT STAGE ~ H_2O & N_2 FILL & DRAIN DISCONNECT & H_2O MEAS. DEVICE SPT.				DRAWING NO. LDW280-18369				EO NO. A2

LIAISON ENGRG | PROJ ENGRG

3/8/63
ISSUED BY E. RANSOM/G. HANSMANN X3352 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01
NAS 9-1100

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ENG 22.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 951
CONTROL INFO NO. LDW 280B 3379

FOR THE FOLLOWING PARTS ADD TH-5/R(65) REQMTS NEXT ASSY LDW 280-54586 FOR THE QUANTITIES NOTED.

DWG NO. (*)	TITLE	REQ'D/MOD.	CHANGE NO.
LDW280-17709-23	SEE DRAWING	1	B8 ✓
LDW280-17710-11 -13 -15 -17 -19		1 1 2 4 2	A9 ✓
LDW280-17739-15		4	C6 ✓
LDW280-17887-15 -17		1 1	B5 ✓
LDW280-18368-13-1		1	A5 ✓
LDW280-18369-11 -13 -15 -16 -21 -23		1 1 1 1 1 1	A3 ✓
LDW280-18458-15		1	A5
LDW280-18515-11 -13		1 1	B1
LDW280-18558-11 -13 -15 -17		1 1 1 1	A2
LDW280M17969-1		1	A2
LDW280M71500-11		1	A1
LDW280M71501-11		3	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2J (5)

REASON FOR EO: ADD TH-5(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TH-5/R(65) REQMTS.

GAEC EO RELEASE: C JK 5/18/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LH		TH-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	JWS			P.S.T.	W/M		JaP	
DATE	5/13/68			5-13-68	5/17/68		5/13/68	5-17-68
	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 951

5-17-68
ISSUED BY G. HANSMANN X3352 SECTION V.D.I. GROUP NO. 280 PL 25

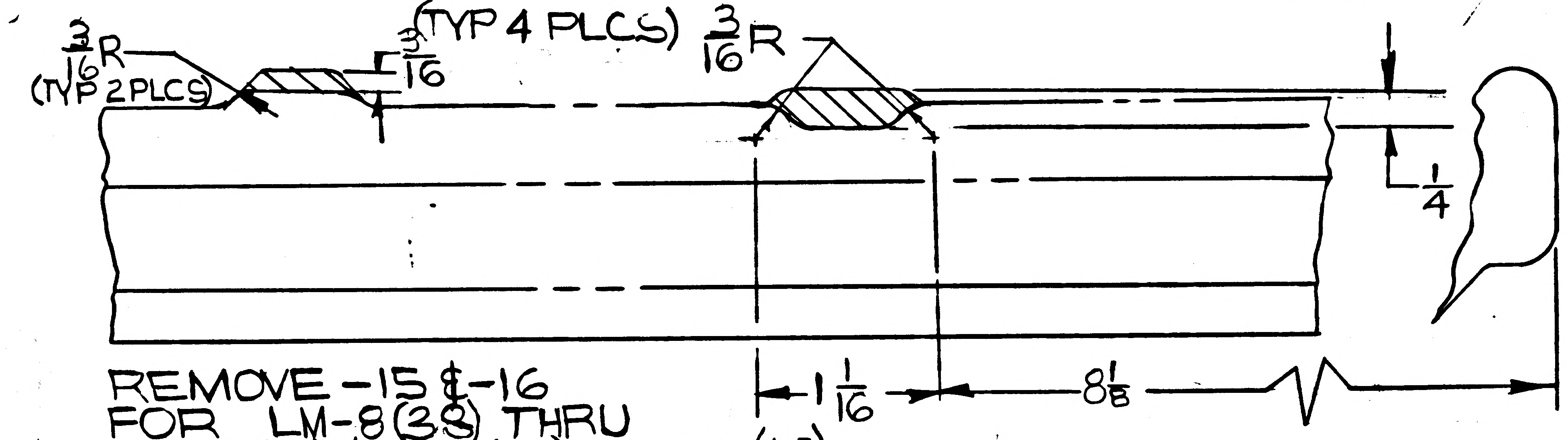
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18369 | EO NO. A4
CONTROL INFO NO. LM-2-4808

IN B/M & F/D

CREATE -15-1 SAME AS -15 (SHOWN) EXCEPT: } TRIM SHADED AREAS
CREATE -16-1 SAME AS -16 (OPP) EXCEPT: }



REMOVE -15 & -16
FOR LM-8 (38) THRU
LM-15 (45) & DVT (70), TM-5DR (65)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒ LCD 1433 CCA-586 (2)

REASON FOR EO: TO PREVENT HOLE BREAK-OUT ON HIGHER INSTL

DESCRIPTION OF EO: -15-1 WAS -15, -16-1 WAS -16, REMOVED -15 & -16 REQMTS FOR LM 8 thru LM-15, TM-5DR, DVT

GAEC C EO RELEASE: VK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LM-8 (38)	DVT 70
		THRU	TM-5 DR (65)
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK -15 -16 | SCRAP

APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT.~~
JAP			—	J.M.	CH	JAP	
DATE 7/3/68			—	6/28/68	6/28/68	7/3/68	7-~~6~~

PRIORITY: C
DRAWING TITLE: SUPPT INSTL D/S - H_2O & N_2 FILL & DRAIN LINES
DRAWING NO.: LDW280-18369
EO NO.: A4

ISSUED BY LIAISON John J. Blase SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18369 | EO NO. A8
CONTROL INFO NO. LDW280B8882

RESTRICT EFFECTIVITY OF -11 TO LM-4(34) THRU LM-9(39), DVT(70), LTA-3(13)

(WAS) LM-4(34) THRU LM-14(44), DVT(70), LTA 3 DR/1 (460) LTA-3(13) & TM-5/R(65) & LTA-11(23)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3994 PKG 88

REASON FOR EO: COSMIC RAY EXPERIMENT REQMTS

DESCRIPTION OF EO: RESTRICT EFFECTIVITY OF -11 (WAS) LM-4(34) THRU LM-14(44), DVT(70), LTA-3 DR/1 (460), LTA-3(13) TM-5/R(65) & LTA-11(23)

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LM-10(40)	LTA 3 DR/1(460)
		THRU	LTA-11(23)
		LM-14(44)	TM-5/R(65)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	10/26/69			10-30-69	10/31/69		10/31/69	10/31/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE, -D/S-H2O & N2 FILL & DRAIN DISCONNECT & H2O MEAS DEVICE SPT	LDW280-18369	A8

CDR 11/3/69
ISSUED BY H. ISRAEL X86048 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	DVT(70)	1
		LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
	LDW280-54575	LM-4(34)	1
	LDW280-23578	DVT(70)	1
		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-23578	LM-4(34)	1

PART NO. LDW280-18370-17 | GAEC SCH NO.

LDW280-18370

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	DVT(70)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54575	LM-4(34)	1 EA

PART NO. LDW280-18370-11-13,-15,-19,-21 &-22 | GAEC SCH NO. 51

WORK PACKAGE FUNCTION #111 3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED ~
LAST DASH NO. USED -22
GRUMMAN REL INFO
PRIM NO. 207
VC(001)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
P ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD1433/1953 CCA586
(O.K.)

CONTRACT NO. NAS 9-1100
DRAWN BY W. CONROY 10-3-67
LAYOUT BY F. MADDEN
CHECKED BY J. BELL 10/9/67
GR LEADER 10/10/67
VEH DES INT 10/10/67
STRUCTURES 10/17/6
STRUCTURES 10/17
WEIGHTS
RELIABILITY
PROJ ENGR 10/10
REL GROUP 10/18/67

LINE ITEM
DOCUMENTATION TYPE II

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-SCIENTIFIC EQUIPMENT BAY
THERMAL DOOR-DRIVE PULLEY SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18370
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR = 10/13/67

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NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18370-22	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.024 x 4 x 4	T6	88	
		-21		ANGLE				.024 x 4 x 4			
		-19		BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.020 x 2 x 3	T6	88	
		-17		TEE	AL ALLOY EXTR	QQ-A-200/11	7075 / T6511	69222 x 3/4	NONE	88	
		-15		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032 x 2 x 6	T6		
		-13		ANGLE				.032 x 2 x 4			
		LDW280-18370-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 x 5 x 7	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18370

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

TRAM OK T.S. 10-2-67

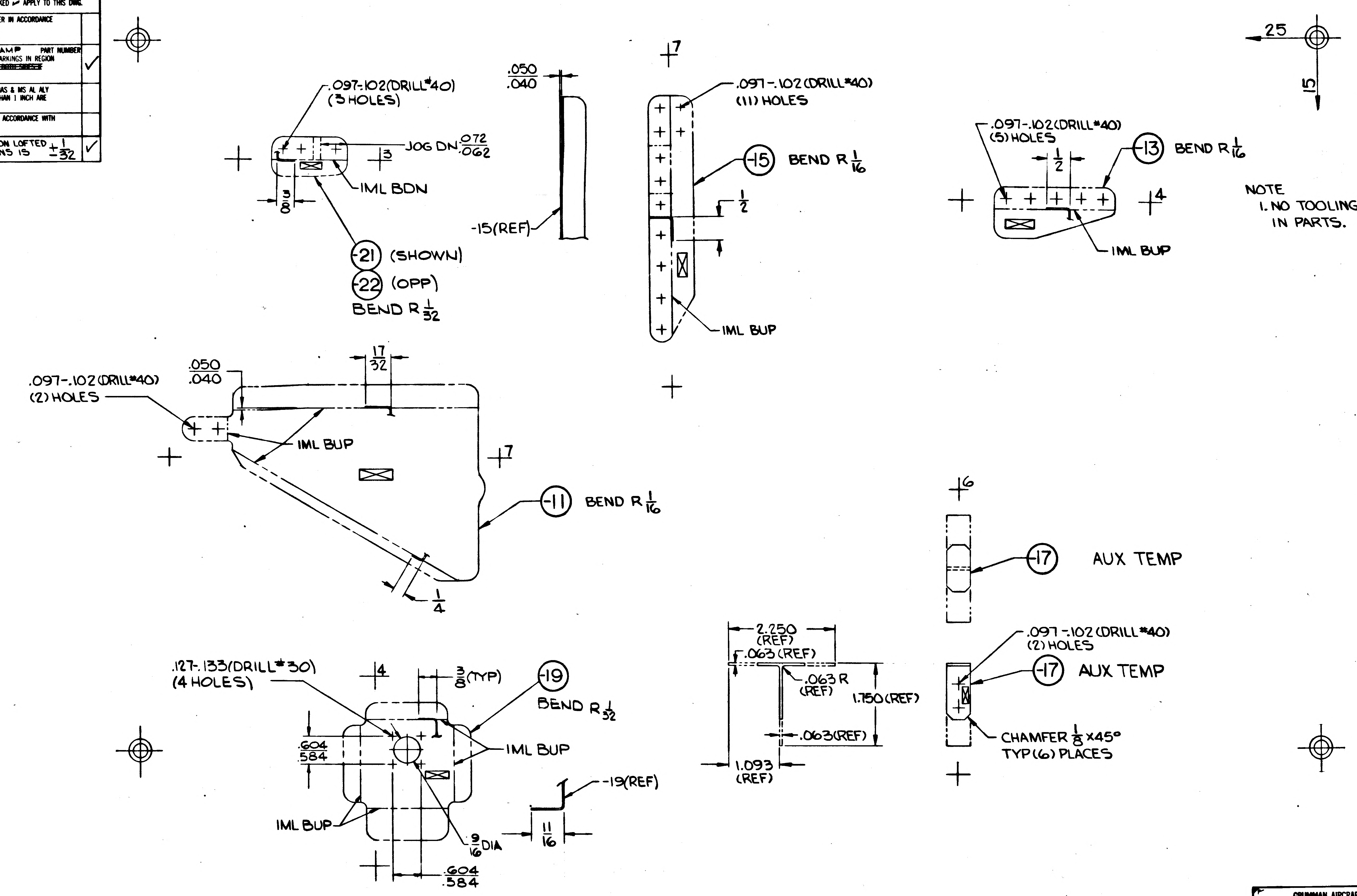
SUPPLEMENTARY DATA

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ [redacted].	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE

1. NO TOOLING HOLES PERMITTED IN PARTS.


.097-.102(DRILL #40)
(3 HOLES)
JOG DN .072/.062
3
3/8
IML BDN
-21 (SHOWN)
-22 (OPP)
BEND R 1/32
.050/.040
-15(REF)
7
.097-.102 (DRILL #40)
(11) HOLES
-15 BEND R 1/16
1/2
IML BUP
.097-.102(DRILL #40)
(5) HOLES
1/2
-13 BEND R 1/16
4
IML BUP
25
15
.097-.102(DRILL #40)
(2) HOLES
.050/.040
17/32
IML BUP
7
-11 BEND R 1/16
1/4
6
-17 AUX TEMP
.127-.133(DRILL #30)
(4 HOLES)
4
3/8(TYP)
-19
BEND R 1/32
.604/.584
IML BUP
IML BUP
9/16 DIA
.604/.584
-19(REF)
11/16
2.250 (REF)
.063 (REF)
.063 R (REF)
1.750 (REF)
.063(REF)
1.093 (REF)
.097-.102 (DRILL #40)
(2) HOLES
-17 AUX TEMP
CHAMFER 1/8 x45°
TYP (6) PLACES

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18370
SCALE FULL		SHEET 3.00

FOR PHOTO 1 REPRODUCTIO

DWG 73.3 REV. 5-67

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 969
CONTROL INFO NO. LDW280B3375

ENG 32.2 REV 3-65

FOR THE FOLLOWING PARTS ADD TM 5/R(65) REQUIREMENTS, N/A LDW280-54575 FOR THE QUANTITIES NOTED

DWG NO *	TITLE	QUANT REQD	CHANGE NO.
LDW280-17712-13	SEE DWG	1	A7 ✓
-14		1	
-21		1	
-17712-22		1	
-17714-11		2	C6 ✓
-13		2	
-19		4	
-21		8	
-23		2	
-25		2	
-27		2	
-17714-29		2	
-17442-11		1	B4 ✓
-17442-13		1	
-18346-11		1	A2 ✓
-18346-13		3	
-18346-15		1	
-18356-13		1	A8 ✓
-19		1	
-31-1		1	
-23		2	
-33		1	
-34		1	
-35		1	
-36		1	
-18356-37		4	
-17294-23		1	B6 ✓
-17294-27		1	
-18370-17		1	A3 ✓
-19		1	
-21		1	
LDW280-18370-22	SEE DWG	1	

DWG NO. *	TITLE	QUANT REQD	CHANGE NO.
	SEE DWG		
LDW280-18322-11		1	A3
-12		1	
-13		1	
-18372-14		1	
-18487-11		1	A1
-18379-15-1		1	A5
M17266-3		1	C6
M17266-4		1	
M17629-1		1	B5
M17640-1		1	B8
M17640-2		1	
M17748-13		1	A4
M17766-11		1	A3
M17769-11		1	A2
M17952-11		1	A1
M17806-11		1	A2
-18349-13-1		1	A8
-14-1		1	
-15		1	
-16		1	
-23		1	
-24		1	
-27		1	
-28		1	
-29		1	
LDW280-18349-30	SEE DWG	1	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3075 CCA 586 PKG 2U	(5) GAEC I C EO RELEASE

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON-(*) ADDED TM-5/R(65) REQMTS

GAEC EO RELEASE: K 5/23/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY								
DATE	5/13/68			5-13-68			5/13/68	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 969

5-17-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1372
CONTROL INFO NO. LDW280B7430

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18369 ✓	A5	SEE DWG
-18370 ✓	A4	↑
-18372	A4	
-18374	A4	
-18375	A4	
-18378	A4	
-18379	A6	
-18380	A3	
-18381	A5	↓
LDW280 -18382	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: VK 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY				PST	WH			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/11/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1372

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

[redacted] LEO 280		EO NO. 1552
CONT INFO NO. LDW 280B 8113		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18365	SEE DWG	B1
✓ 368	↑	B2
✓ 369		A6
✓ 370		A5
372		A5
374		A5
375		A5
378		A5
379		A7
LDW280-18380	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 32 & 33 (5)

REASON FOR EO
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE: SWB 8-13-69; JK 8/15/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		NOT REQ'D		APPROVED BY	PST			N		Bauman	
				DATE	7-29-69			7/29/69	8/2/69	8/7/69	8/14/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1552

8-26-69 ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18372

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	D.V.T (70)	2
		LM-15 (45)	2
		LM-14 (44)	2
		LM-13(43)	2
		LM-12 (42)	2
		LM-11 (41)	2
		LM-10 (40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5 (35)	2
LM	LDW280-54575	LM-4(34)	2
PART NO. LDW280-18372-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	D.V.T.(70)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54575	LM-4(34)	1 EA
PART NO. LDW280-18372-11-12-13-14-17 4-19		GAEC SCH NO. 51	

WORK PKG FUNCTION NO. 111 3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REL^G INFO			
LAST DASH NO. USED	-19	PRIM NO.	JK(001)		
		207	MP-16	10/18/67	

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

5	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 1433-CCA 586	

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	A.BISHOP 9-26-67	RELIABILITY	
LAYOUT BY	F.MADDEN Am 10-3-67		
CHECKED BY	10.3.67		
GR LEADER	10/3/67		
VEH DES INT	10/3/67		
STRUCTURES	10/17/67	PROJ ENGR	10/3/67
STRUCTURES	Hilderman 10/17	REL GROUP	10/18/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

HAT
DESCENT STAGE~SCIENTIFIC EQUIP SUPPORT~UPPER DECK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18372
SCALE	NONE	SHEET 1.00 OF 3

CDR 10/4/67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18372-19	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032×2×4	T6	88	
		-17		ANGLE				.032×2×3			
		-15		CHANNEL				.040X2×5	T6		
		-14		ANGLE				.032 ×2×8	NOTE 2		
		-13		ANGLE				.032×2 ×8	NOTE 2		
		-12		HAT				.040X6×13	T6		
		LDW280-18372-11	E	HAT	AL ALLOY SH	QQ-A-250/12	7075	.040X6×13	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18372

SCALE NONE

SHEET 2.00

θ

ENG 77.2 7-65

01

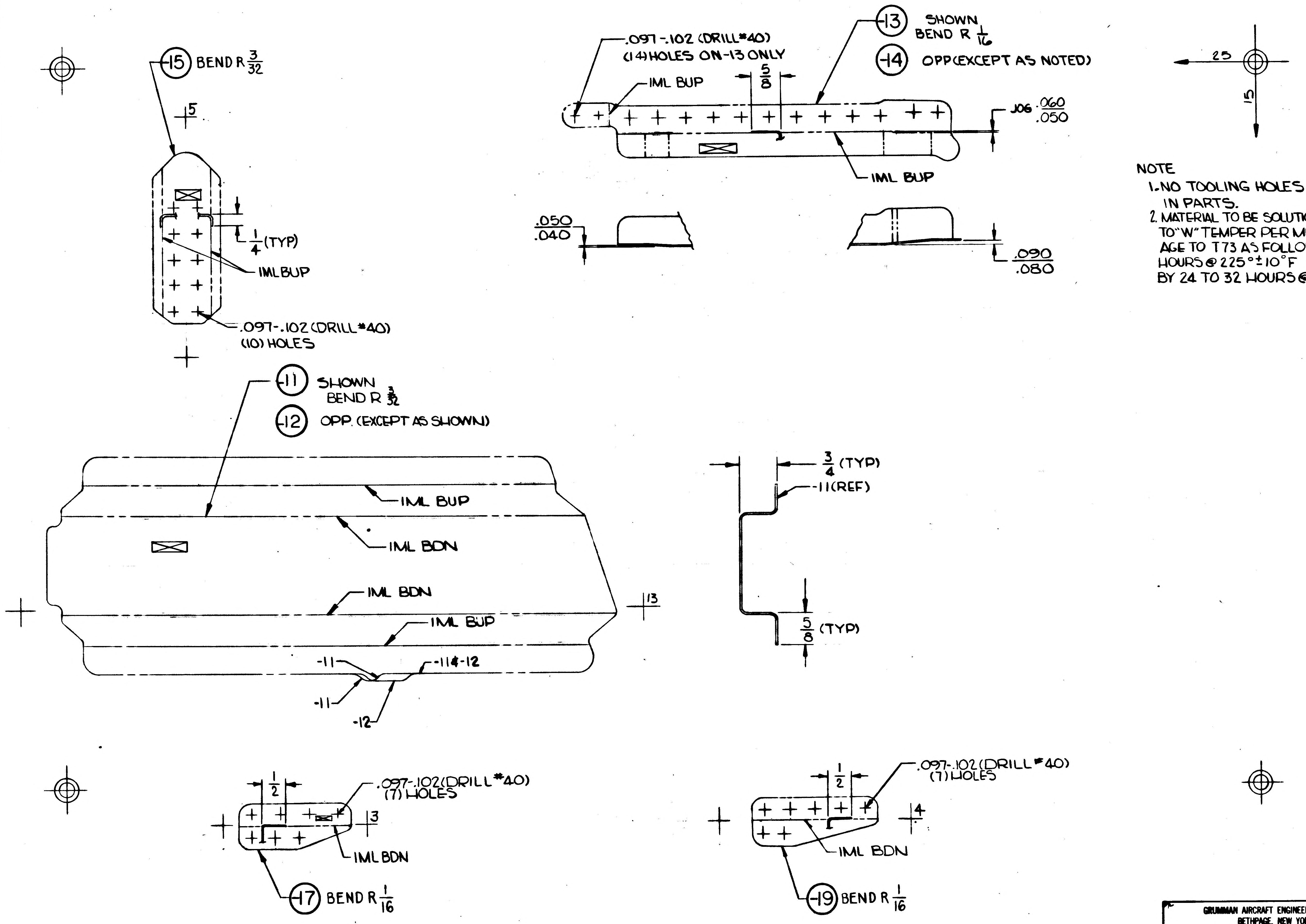
NAS 9-1100

LDW280-18372

TEAM OK
P.S. 9/27/67

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ [redacted]	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS $\pm\frac{1}{32}$	✓



-15 BEND R $\frac{3}{32}$
.5
$\frac{1}{4}$ (TYP)
IML BUP
.097-.102 (DRILL #40) (10) HOLES
.097-.102 (DRILL #40) (14) HOLES ON -13 ONLY
IML BUP
$\frac{5}{8}$
-13 SHOWN BEND R $\frac{1}{16}$
-14 OPP (EXCEPT AS NOTED)
JOG $\frac{.060}{.050}$
IML BUP
$\frac{.050}{.040}$
$\frac{.090}{.080}$
25
15
-11 SHOWN BEND R $\frac{3}{32}$
-12 OPP. (EXCEPT AS SHOWN)
IML BUP
IML BDN
IML BDN
IML BUP
-11
-11&-12
-11
-12
13
$\frac{3}{4}$ (TYP)
-11 (REF)
$\frac{5}{8}$ (TYP)
$\frac{1}{2}$
.097-.102 (DRILL #40) (7) HOLES
13
IML BDN
-17 BEND R $\frac{1}{16}$
$\frac{1}{2}$
.097-.102 (DRILL #40) (7) HOLES
14
IML BDN
-19 BEND R $\frac{1}{16}$

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. MATERIAL TO BE SOLUTION TREATED TO "W" TEMPER PER MIL-H-6088, AGE TO T73 AS FOLLOWS: 6 TO 8 HOURS @ 225° ± 10°F FOLLOWED BY 24 TO 32 HOURS @ 325° ± 10°F

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18372
SCALE FULL		SHEET 3.00

FOR PHOTO 1 REPRODUCTI

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 782
CONTROL INFO NO. LDW280A9816

ADD LTA-3(13) EFFECTIVITY TO DASH NO. * OF THE FOLLOWING DWGS:
QUANTITY SAME AS LM-4(34) THRU LM-15(45)

DWG. NO.	DASH NO. *	N/A	TITLE	CHG. NO.
LDW280-18372	-11,-12,-13,-14,-15,-17,-19	LDW280-54575	SEE DWG.	A1
-18373	-11,-13,-15,-17,-19,-21	-54575		A1
-18386	-11,-13,-15,-16,-17,-19	-54576		A1
-18387	-11,-13,-15,-17,-19,-21	-54576		A1
M17775	-11	-54625		A1
M17778	-11,-13,-15,-17,-19,-21	-54625		A1
M17762	-1	-54625		A1
M17784	-11,-12	-54576		A1
-18388	-11,-13,-14,-15,-16	-54576		A1
-18389	-11,-13,-15,-16	-54576		A1
-18390	-11,-13,-15,-17,-19	-54576		A1
-18351	-1	-54625		A1
LDW280-54593	-1	LDW280-54509	SEE DWG	A1
LDW 280-18411	-13,-15	LDW280-54625	SEE DWG	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD1433 ok. CCA586 (5)

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3(13) EFFECTIVITY TO DASH NO. *

GAEC EO RELEASE: JK 11/1/

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

		V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	D	JaP			JAS	WJH		WRP	
DATE		10/23/67			10/26/67	10/23/67		10/26/67	10-3-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 782

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO. LDW280-18372

EO NO. A2

CONTROL INFO NO. LDW 280 B0097

FOR LDW280-18372-15, -17, & -19 REMOVE LTA-3(13), LM-4(34) THRU LM-15(45) & D.V.T. (70) REQMTS.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433	CCA 586

REASON FOR EO: ALSEP THERMAL DOOR REDESIGN

DESCRIPTION OF EO: FOR -15 -17 & -19 REMOVED LTA-3(13), LM-4(34) THRU LM-15(45) & D.V.T. (70) REQMTS.

GAEC EO RELEASE: 1/2/67

5

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU LM-15(45)	
		D.V.T. (70) & LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	11/20/67			11-18-67	11/21/67		11/21/67	11-28-67
B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: HAT ~ D.S. ~ SEQ ~ SUPPORT UPPER DECK.

DRAWING NO. LDW280-18372

EO NO. A2

1-5-68

ISSUED BY AM Wilson / P. Thorjusen x9505 SECTION VEH. DES INT. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 969
CONTROL INFO NO. LDW280B3375

FOR THE FOLLOWING PARTS ADD TM 5/R(65)REQUIREMENTS, N/A LDW280-54575 FOR THE QUANTITIES NOTED

DWG NO *	TITLE	QUANT REQD	CHANGE NO
LDW280-17712-13	SEE DWG	1	A7 ✓
-14		1	
-21		1	
-17712-22		1	
-17714-11		2	C6 ✓
-13		2	
-19		4	
-21		8	
-23		2	
-25		2	
-27		2	
-17714-29		2	
-17442-11		1	B4 ✓
-17442-13		1	
-18346-11		1	A2 ✓
-18346-13		3	
-18346-15		1	
-18356-13		1	A8 ✓
-19		1	
-31-1		1	
-23		2	
-33		1	
-34		1	
-35		1	
-36		1	
-18356-37		4	
-17294-23		1	B6 ✓
-17294-27		1	
-18370-17		1	A3 ✓
-19		1	
-21		1	
LDW280-18370-22	SEE DWG	1	

DWG NO. *	TITLE	QUANT REQD	CHANGE NO.
	SEE DWG		
LDW280-18322-11		1	A3 ✓
-12		1	
-13		1	
-18322-14		1	
-18482-11		1	A1
-18379-15-1		1	A5
M17266-3		1	C6
M17266-4		1	
M17629-1		1	B5
M17640-1		1	B8
M17640-2		1	
M17748-13		1	A4
M17766-11		1	A3
M17769-11		1	A2
M17952-11		1	A1
M17806-11		1	A2
-18349-13-1		1	A8
-14-1		1	
-15		1	
-16		1	
-23		1	
-24		1	
-27		1	
-28		1	
-29		1	
LDW280-18349-3C	SEE DWG	1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2U (5)

REASON FOR EO: ADD TM-5/R(65)REQMTS.

DESCRIPTION OF EO: ON-(*) ADDED TM-5/R(65)REQMTS

GAEC EO RELEASE: C K 5/23/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY: JAB
DATE: 5/13/68
VDI

GROUP LEADER: 5-13-68
STRESS GROUP: W/H
PROJ ENGRG: 5/13/68

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 969

5-17-68
ISSUED BY T. COTTER x3352/P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO LEO 280 | EO NO. 1372
CONTROL INFO NO. LDW280B7430

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18369	✓	A5	SEE DWG
-18370	✓	A4	
-18372	✓	A4	
-18374		A4	
-18375		A4	
-18378		A4	
-18379		A6	
-18380		A3	
-18381		A5	
LDW280 -18382		A4	SEE DWG

* APPLICABLE DASH NOS

✓ LCD 3587 PKG 54 PG. 6 CCA 1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM
– *

LM		LM-15(45)	

✓ ✓

VDI

PST 4-2-69

C

SEE DWG

LEO 280

1372

ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1552
CONTROL INFO NO. LDW280B 8113

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18365	SEE DWG	B1
✓ 368		B2
✓ 369		A6
✓ 370		A5
✓ 372		A5
374		A5
375		A5
378		A5
379		A7
LDW280-18380	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 32 & 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SWB 8-13-69; JK 8/15/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	PBT				N			Bauman
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8/1/69		7/7/69	8/14/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1552

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

LDW280-18373

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	DVT(70)	1EA
↑	↑	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
↓	↓		
LM	LDW280-54575	LM-4(34)	1 EA

PART NO. LDW280-18373-11-13-15-17-19-21

GAEC SCH NO. 51

WORK PKG FUNCTION NO 111

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -21

GRUMMAN REL INFO

PRIM NO. JK(001) 207 MP-16 10/18/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°

5 ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433, CCA 586

DRAWN BY J GARRAFFO 10-3-67

LAYOUT BY R GORTLER

CHECKED BY 10.4.67

GR LEADER 10/4/67

VEH DES INT 10/4/67

STRUCTURES 10/7/67

STRUCTURES 10/7

WEIGHTS

RELIABILITY

PROJ ENGR 10/4/67

REL GROUP J Taghavia 10-17-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - THERMAL BAY DOOR
DRIVE PULLEY SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18373

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 10/4/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18373-21	E		PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.080X1X3	NONE	88	
	-19	↕		CHANNEL	↕	↕	7075	.032X5X14	T6	88	
	-17	↕		ANGLE	↕	↕	7075	.032X6X9	T6	88	
	-15	↕		CHANNEL	↕	↕	7075	.032X5X8	T6	88	
	-13	↕		CHANNEL	↕	↕	7075-T6	.032X3X11	NONE	88	
	LDW280-18373-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032X4X5	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18373

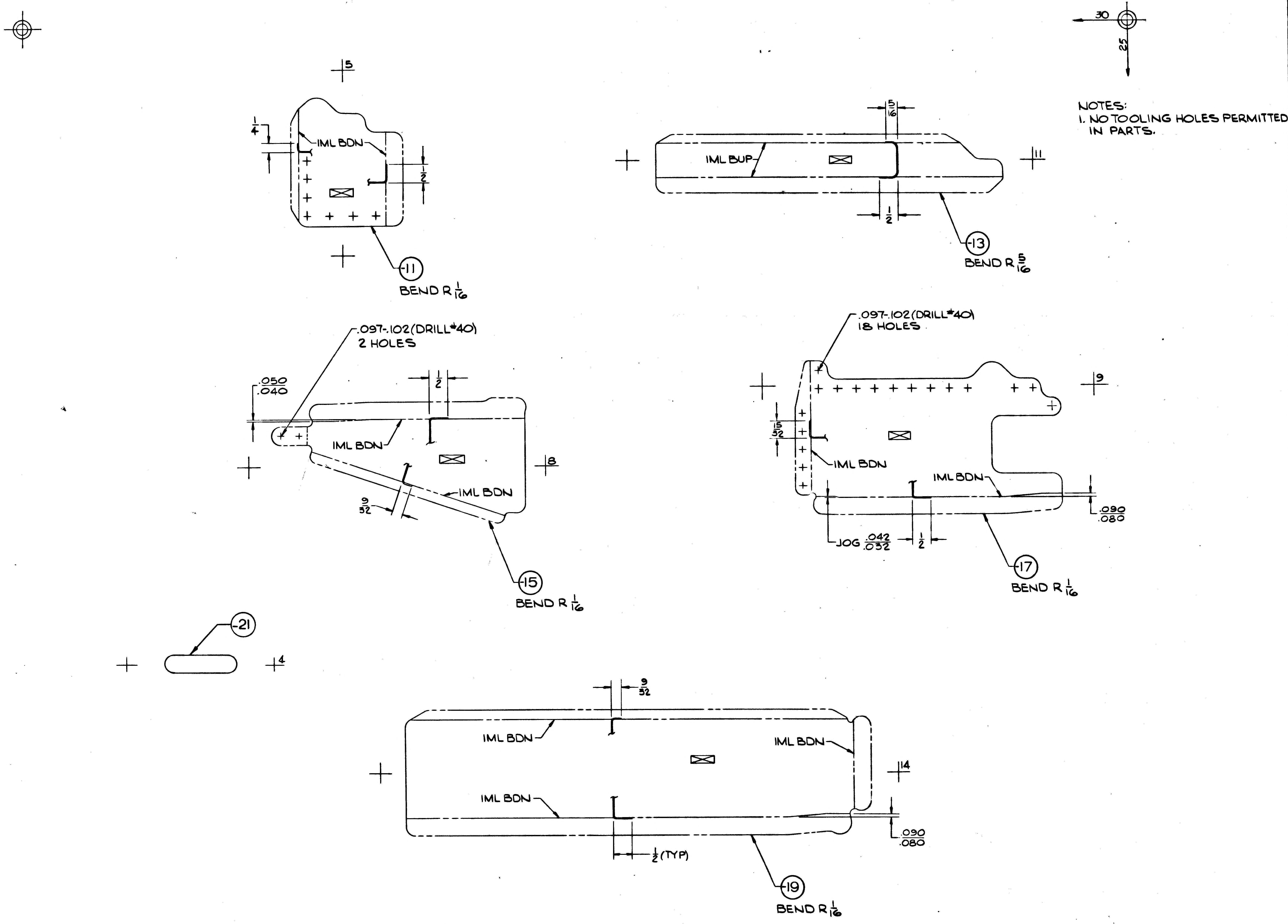
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100



5
1/4
IML BDN
1/2
-11
BEND R 1/16
5/16
IML BUP
1/2
11
-13
BEND R 5/16
30
25
.097-.102 (DRILL #40)
2 HOLES
.050
.040
1/2
IML BDN
8
IML BDN
9/32
-15
BEND R 1/16
.097-.102 (DRILL #40)
18 HOLES
9
15/32
IML BDN
IML BDN
.090
.080
JOG .042/.032
1/2
-17
BEND R 1/16
-21
4
9/32
IML BDN
IML BDN
IML BDN
14
.090
.080
1/2 (TYP)
-19
BEND R 1/16

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18373

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK		
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18373
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

ENG 73-5 6-64

01 NAS 9-1100

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 782
CONTROL INFO NO. LDW280A9816

ADD LTA-3(13) EFFECTIVITY TO DASH NO. * OF THE FOLLOWING DWGS:
QUANTITY SAME AS LM-4(34) THRU LM-15 (45)

DWG. NO.	DASH NO. *	N/A	TITLE	CHG. NO.
LDW280-18372	-11,-12,-13,-14,-15,-17,-19	LDW280-54575	SEE DWG.	A1
-18373	-11,-13,-15,-17,-19,-21	-54575		A1
-18386	-11,-13,-15,-16,-17,-19	-54576		A1
-18387	-11,-13,-15,-17,-19,-21	-54576		A1
M17775	-11	-54625		A1
M17778	-11,-13,-15,-17,-19,-21	-54625		A1
M17762	-1	-54625		A1
M17784	-11,-12	-54576		A1
-18388	-11,-13,-14,-15,-16	-54576		A1
-18389	-11,-13,-15,-16	-54576		A1
-18390	-11,-13,-15,-17,-19	-54576		A1
-18351	-1	-54625		A1
LDW280-54593	-1	LDW280-54509	SEE DWG	A1
LDW 280-18411	-13,-15	LDW280-54625	SEE DWG	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD1433 OK. CCA586 (5)

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3(13) EFFECTIVITY TO DASH NO. *

GAEC EO RELEASE: C JK 11/1

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	APPROVED BY	DATE
D		10/23/67
V.D.I.		
SUPPORT		
RELIAB. GROUP		
GROUP LEADER		10/26/67
STRESS GROUP		10/23/67
LIAISON ENGRG		
PROJ ENGRG		10/26/67
~~GOVT~~		10-3-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 782

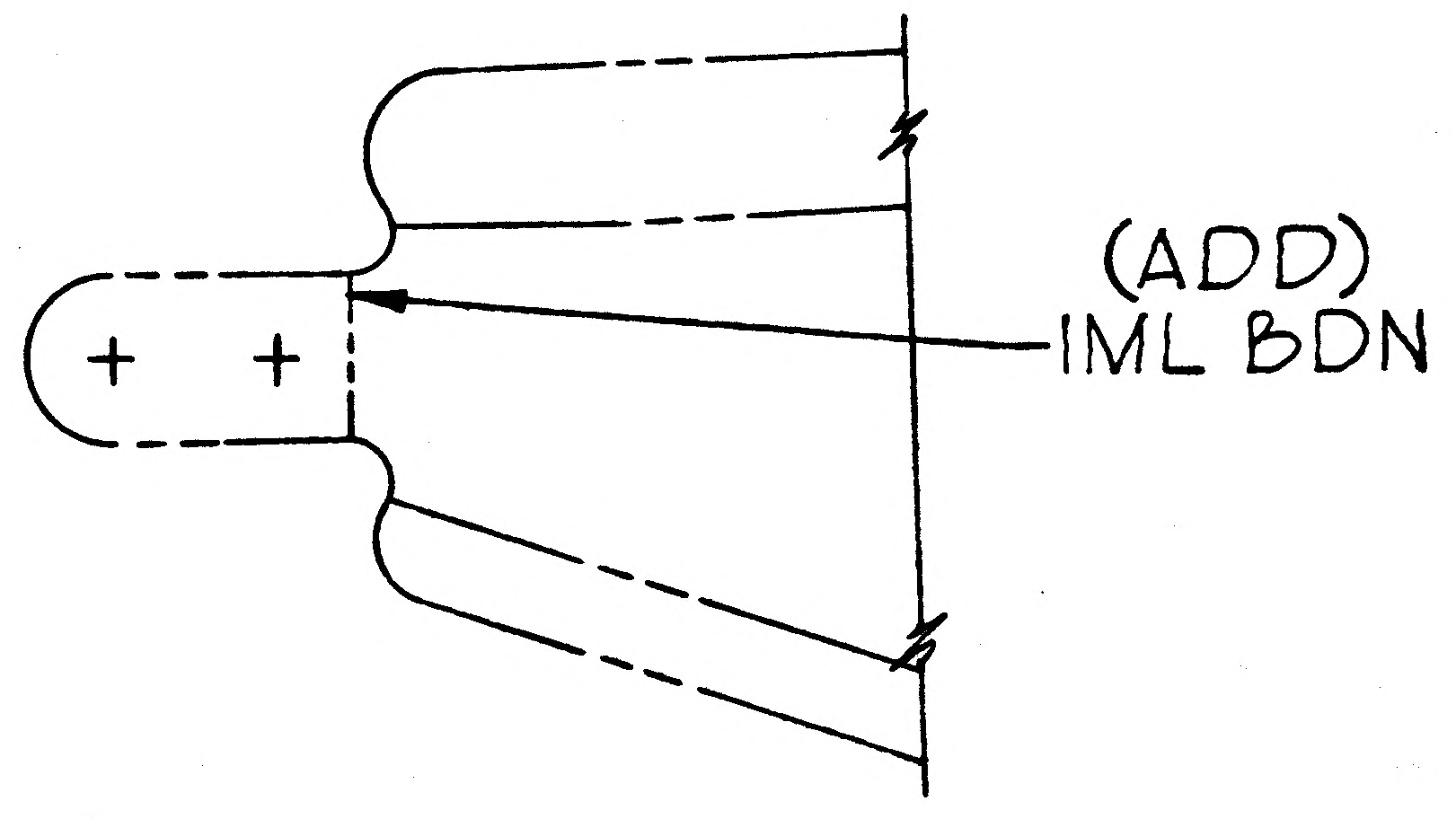
10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65 B.

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18373
EO NO. A2
CONTROL INFO NO. LM3-5810

ON-15 IN FLD



LDW280-18373-15(REF)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: INFORMATION NEEDED TO COMPLETE THE PART.

DESCRIPTION OF EO: ON-15 IN FLD ADDED "IML BDN"

GAEC EO RELEASE (3): JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45)	
		D.V.T.(70)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D. REWORK | SCRAP

APPROVED BY					BM		JHP	Botti
DATE	12/2/67				11-18-67	11-20-67	12/2/67	11-20-67
	VD/	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY: C3

DRAWING TITLE: CHANNEL DESCENT STAGE THERMAL BAY DOOR-DRIVE PULLEY SUPPORT

DRAWING NO. LDW280-18373

EO NO. A2

ISSUED BY LIAISON V. BOLLO/G. DIEHL (x2151) 11-16-67 VB SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00 & 3.00		G		✓		E.O. A1 LCD 1433 CCA 586	REMOVED -11, -12, -13, -14, -15, -16, -17, & -18. ADDED -21, -23, -25, & -27. ADDED SH. 1.10.	LM-4 (34) THRU LM-15 (45) DVT (70)		-11 THRU -18.	M. SMALL 1-8-70		
	2	1.00				✓		LEO280-950 LCD 3075 CCA 586	ON -19, -21, -23, -25, & -27 ADDED TM-5/R (65) REQMTS.	TM-5/R(65)	NOT	REQD			
	3	1.00, 2.00 & 3.00				✓		E.O. A3 LCD 1433 CCA 586	REVISED TRIM ON -25, & -27. ADDED -29, & -30.	LM-4 (34) THRU LM-15 (45) DVT (70)	✓				
	4	1.00				✓		LEO280-1372 LCD 3587 CCA 1821	DELETED LM-15 (45) EFF. FROM -19, -21, -23, -25, -27, -29, & -30.	LM-15 (45)		✓			
	5	1.00				✓		LEO280-1552 LCD 3890	ON -19, -21, -23, -25, -27, -29, & -30, ADDED LTA-11 (23) REQMTS.	LTA-11 (23)	NOT	REQD			
	6	1.00				✓		LEO280-1650 LCD 3890	ON -19, -21, -23, -25, -27, -29, & -30, ADDED LTA-3 DR/1 (460) REQMTS.	LTA-3 DR/1 (460)			A.D.		
	7	3.00		5-LM-1467			✓	R	ON -29, REV PROJECTION OF END VIEW	NOT REQD	NOT	REQD	F. Zuleo 1-8-70		

CHG APPROVED	LTR	GROUP LDR.	VDI	STRUCT	STRUCT	WEIGHTS
	A	1/14/70	1-14-70		WJ 1/14/70	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18374	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

LDW280-18374 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	LTA-3DR/1(460)	1 EA
		LTA-11 (23)	
		DSGN VERIFICATION TEST (70)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
LM	LDW280-54679	LM-4(34)	1 EA
LDW280-18374-29,&-30			
LM	LDW280-54679	LTA3DR/1(460)	4

PART NO. LDW280-18374-19 CONTD

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	TM-5/R(65)	4
		DSGN VERIFICATION TEST (70)	4
		LTA-11(23)	4
		LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
		LM-10(40)	4
		LM-9(39)	4
		LM-3(38)	4
		LM-7(37)	4
		LM-6(36)	4
		LM-5(35)	4
LM	LDW280-54679	LM-4(34)	4

PART NO. LDW280-18374-19

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	LTA-3DR/1(460)	1 EA
		TM5/R(65)	1 EA
		DSGN VERIFICATION TEST (70)	1 EA
		LTA-11(23)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54679	LM-4(34)	1 EA

PART NO. LDW280-18374-21,-23,-25,-27,

GAEC SCH NO. 51

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -30

GRUMMAN REL INFO A

PRIM NO.	JK(00)	
207	ME-16A	1/19/70

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

G ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 CCA 586

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	G. ZARCADOOLAS 12-19-67
LAYOUT BY	G. HANSMANN 1-2-68
CHECKED BY	12·28·67
GR. LEADER	1·2·68
VEH DSGN INT	1/3/68
STRUCTURES	1/4/68
STRUCTURES	1/5/68
WEIGHTS	
PROJ ENGR	1/5/68
REL GROUP	1·5·68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE-SCIENTIFIC EQUIP. BAY
UPPER DECK-CABLE BRACKET SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18374	A

SCALE NONE SHEET 1.00 OF 4

CDR 12-29-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18374-30	E		CLIP	AL ALY SH	QQ-A-250/12	7075-T6	.050X3X3	NONE	88	
	-29						7075-T6	.050X3X3	NONE		
	-27						7075	.045X3X4	T6		
	-25						7075	.045 X3X5	T6		
	-23						7075	.045 X3X4	T6		
	-21			CLIP			7075	.045 X3X5	T6		
	LDW280-18374-19	E		SPLICE	ALALY SH	QQ-A-250/12	7075-T6	.036X2X2	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18374	A
SCALE NONE			SHEET 2.00

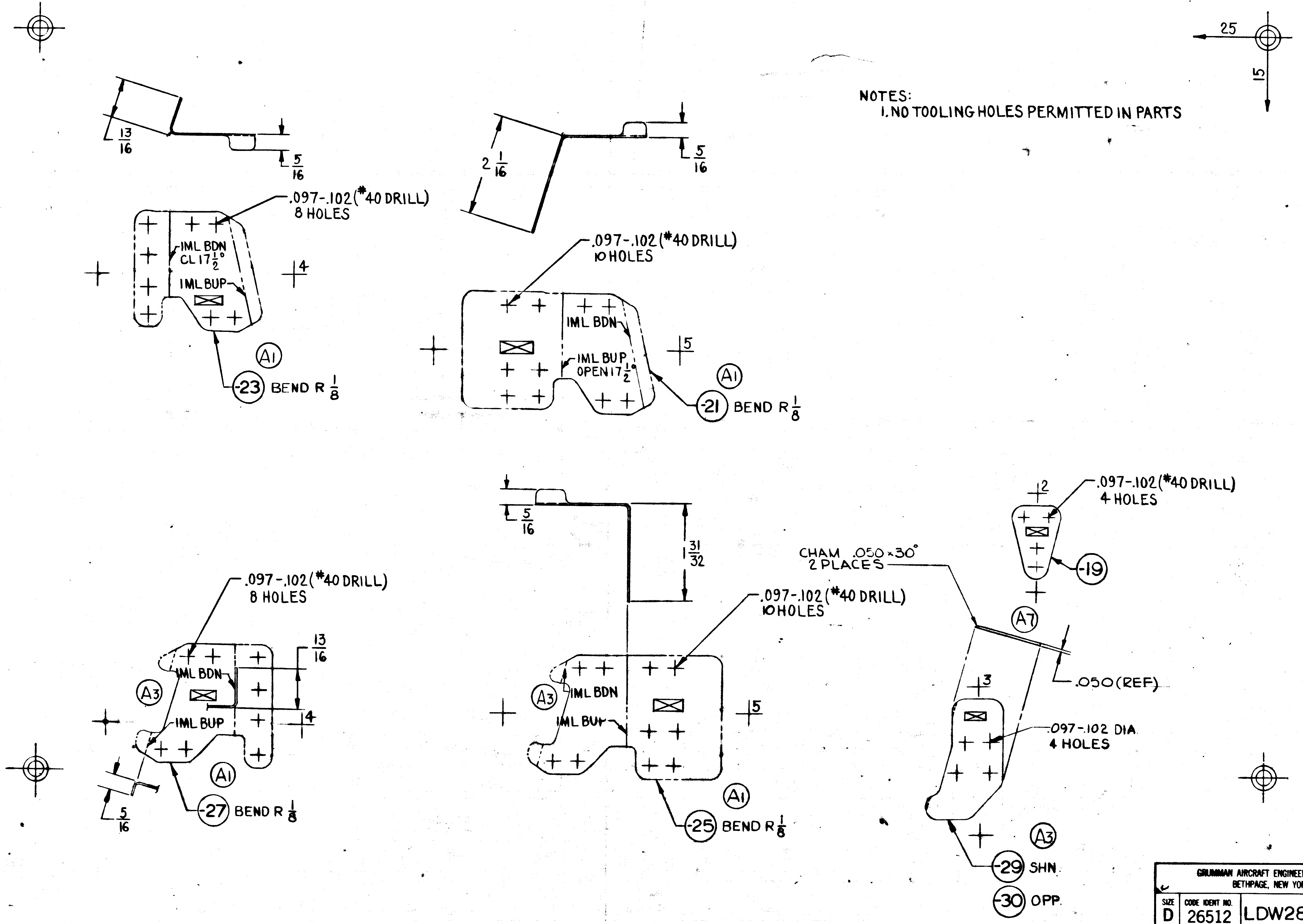
ENG 77.2 5-64

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS



25
15
13/16
5/16
.097-.102 (#40 DRILL) 8 HOLES
IML BDN CL 17 1/2°
IML BUP
4
A1
-23 BEND R 1/8
2 1/16
5/16
.097-.102 (#40 DRILL) 10 HOLES
IML BDN
IML BUP OPEN 17 1/2°
5
A1
-21 BEND R 1/8
.097-.102 (#40 DRILL) 4 HOLES
2
-19
5/16
1 31/32
.097-.102 (#40 DRILL) 8 HOLES
13/16
A3
IML BDN
IML BUP
4
A1
5/16
-27 BEND R 1/8
.097-.102 (#40 DRILL) 10 HOLES
A3
IML BDN
IML BUP
5
A1
-25 BEND R 1/8
CHAM .050 x 30° 2 PLACES
A7
.050 (REF)
3
.097-.102 DIA 4 HOLES
A3
-29 SHN.
-30 OPP.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18374	A
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LF0280 EO NO. 1866

CONTROL INFO NO. LDW280C0198

FOR THE FOLLOWING INSTL. & DETAILS WITH N/A* REMOVE LTA-3DR/1(460) REQMTS.:

DWG. NO. & DASH NO.'s.	CHANGE NO.	N/A	DWG. NOMENCLTR.
LDW280- ~		~	SEE DWG.
✓ -18374-19(4) **	B1	*LDW280-54679	
-18375-12,-17(4),-19 **	A8		
-18489-11,-13,-15(2),-17,-18,-19 **	A6		
-18460-17,-19,-21,-23,-25 **	A8		
-18461-13(2),-15(2),-19,-21,-22 **	B4		
-18469-11,-13(2),-15(2),-17(2),-19(2) **	A5		
-18470-11,-13,-15,-19,-21 **	A7		
M17884 -13-1(2) **	B3		
LDW280-18506-11,-13,-15,-17,-19(2) **	A6	LDW280-54679	SEE DWG.

* APPLICABLE N/A

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 70 PG. 12

REASON FOR EO: TO EXPEDITE MANUFACTURING OPERATIONS

DESCRIPTION OF EO: FOR ** REMOVED LTA-3DR/1 (460) REQUIREMENTS FOR N/A LDW280-54679

GAEC EO RELEASE (R)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY		
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK	SCRAP ✓

APPROVED BY	PGT				NM			
DATE	3-20-70			3/20/70	3/23/70		3/24/70	3/24/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LE0280	1866

CDR.032470

ISSUED BY A. GROSS / G. HANSMANN SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18375

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DSGN VERIFICATION TEST (70)	4
		LM-15(45)	4
		LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
		LM-10(40)	4
		LM-9(39)	4
		LM-8(38)	4
		LM-7(37)	4
		LM-6(36)	4
		LM-5(35)	4
LM	LDW280-54679	LM-4(34)	4

PART NO. LDW280-18375-17 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DSGN VERIFICATION TEST (70)	2 EA
		LM-15(45)	2 EA
		LM-14(44)	2 EA
		LM-13(43)	2 EA
		LM-12(42)	2 EA
		LM-11(41)	2 EA
		LM-10(40)	2 EA
		LM-9(39)	2 EA
		LM-8(38)	2 EA
		LM-7(37)	2 EA
		LM-6(36)	2 EA
		LM-5(35)	2 EA
LM	LDW280-54679	LM-4(34)	2 EA

PART NO. LDW280-18375-13,-14 &-15 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DSGN VERIFICATION TEST (70)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54679	LM-4(34)	1 EA

PART NO. LDW280-18375-11,-12 &-19 — GAEC SCH NO. 51

WORK PKG FUNCTION NO. 111

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00								
REV												
SHEET												
REV												
SHEET												
REV												

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°

D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD1433, CCA586
CK

CONTRACT NO. NAS9-1100

DRAWN BY	G.ZARCADOOLAS 12-19-67
LAYOUT BY	G.HANSMANN 1/3/68
CHECKED BY	WCG 1/3/68
GR LEADER	Thorinsen 1-3-68
VEH DSGN INT	1/4/68
STRUCTURES	WB W/H 1/5/68
STRUCTURES	EB 1/5/68
WEIGHTS	
PROJ ENGR	J. Pursatori 1/4/68
REL GROUP	J. Tagliavia 1-5-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-SCIENTIFIC EQUIP. BAY
UPPER DECK-CABLE BRACKET SUPPORT

SIZE B — CODE IDENT NO. 26512 — LDW280-18375
SCALE NONE — SHEET 1.00 OF 3

CDR 12-29-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18375-19	E		ANGLE	AL ALY SH	QQ-A-250/12	7075	.032X2X6	T6	88	
	LDW280-18375-17	E		SPLICE	AL ALY SH	QQ-A-250/12	7075-T6	.036X2X3	NONE	88	
	-15			CLIP			7075	.032X2X3	T6	88	
	-14			CLIP			7075	.032X2X3	T6	88	
	-13			CLIP			7075	.032X2X3	T6	88	
	-12			CHANNEL			7075	.032X4X14	T6	88	
	LDW280-18375-11	E		CHANNEL	AL ALY SH	QQ-A-250/12	7075	.032X4X14	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18375

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

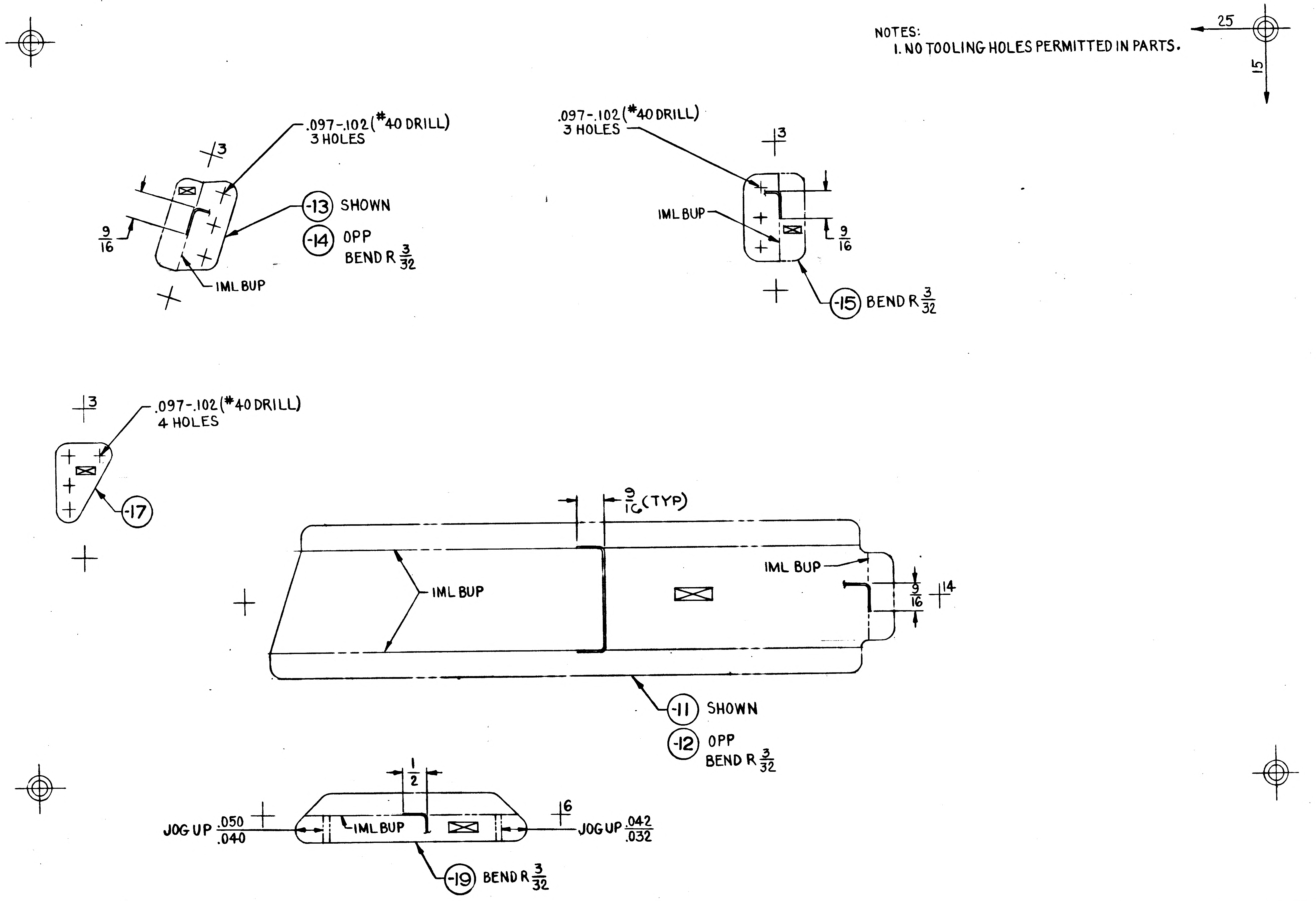
NAS 9-1100

LDW280-18375

TEAM OK
95 12-12-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBERSTAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



25
15
.097-.102 (#40 DRILL)
3 HOLES
3
9/16
-13 SHOWN
-14 OPP
BEND R 3/32
IML BUP
.097-.102 (#40 DRILL)
3 HOLES
3
IML BUP
9/16
-15 BEND R 3/32
3
.097-.102 (#40 DRILL)
4 HOLES
-17
9/16 (TYP)
IML BUP
IML BUP
9/16
14
-11 SHOWN
-12 OPP
BEND R 3/32
1/2
JOG UP .050/.040
IML BUP
6
JOG UP .042/.032
-19 BEND R 3/32

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18375
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18375

NAS 9-1100

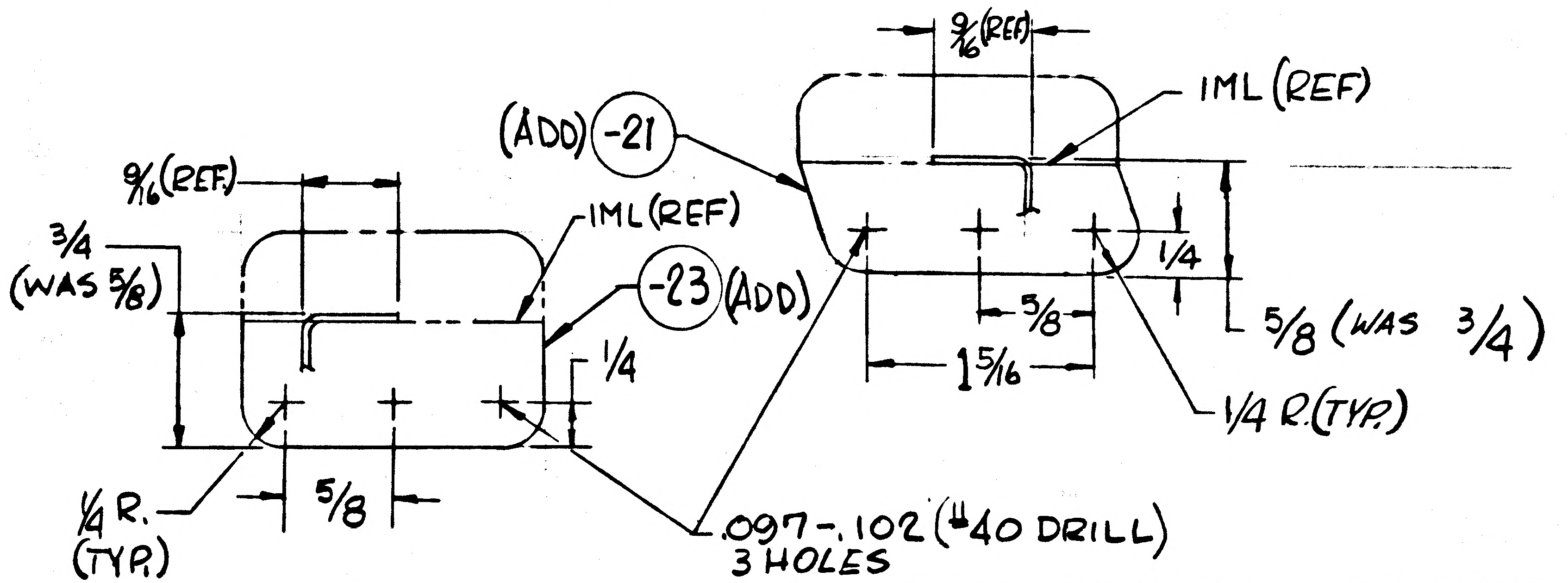
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18375 | EO NO. A3
CONTROL INFO NO. LDW280B3477

IN F/D & B/M: ADD -21, IDENTICAL TO -14 EXCEPT AS NOTED, N/A LDW280-54679, (1) REQD/MODULE.
IN M/B: -14 (1) REQD/MODULE WAS (2)
IN F/D & BM: ADD -23, SAME AS -15 EXCEPT AS NOTED, N/A LDW280-54679, (2) REQD/MODULE.
IN M/B: -15 (1) REQD/MODULE WAS (3).



LCD 3075 CCA 586 PKG 2H (5)
LCD 1433 CCA 586 PKG. 13

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓

REASON FOR EO: TO ALLOW CLEARANCE WITH ADJACENT STRUCTURE & BLIND RIVET CLEARANCE FOR UNDERLYING STRUCTURE.

DESCRIPTION OF EO: ADDED -21 & -23, FOR -15 (1) REQD/MOD. WAS (3), FOR -14 (1) REQD/MOD. WAS (2)

GA EO REL: VK 5/23/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(15) THRU LM-15(45), DVT(70), TM-S/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	5/15/68			5-15-68	5/15/68		5/15/68	5-22-68
G	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT.~~

PRIORITY: C
DRAWING TITLE: CHANNEL ~ D/S ~ SEQ BAY ~ UPPER DECK ~ CABLE BRACKET SPT.
DRAWING NO.: LDW280-18375
EO NO.: A3

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-66

DWG. NO. LEO 280 | EO NO. 1372

CONTROL INFO NO. LDW280B7430

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18369 ✓	A5	SEE DWG
-18370 ✓	A4	
-18372 ✓	A4	
-18374 ✓	A4	
-18375 ✓	A4	
-18378	A4	
-18379	A6	
-18380	A3	
-18381	A5	
LDW280 -18382	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: VK 4/22

EFFECTIVITY

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK	SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CUST
APPROVED BY	[illegible]			PSF	WJH		JEP	[illegible]
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/11/69

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 1372

052869

ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18375
EO NO. A7
CONTROL INFO NO. LDW280 B-9574

REMOVE -14 & -15
FOR -21 2 REQ'D/MOD WAS (1)
FOR -23 3 REQ'D/MOD WAS (2)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 LCD 1433 (5)

REASON FOR EO: REVISED DETAIL PART REQUIREMENTS TO AGREE WITH NEXT HIGHER ASSY.

DESCRIPTION OF EO:
REMOVED -14 & -15
FOR -21, 2 REQ'D/MOD WAS (1)
FOR-23 3 REQ'D/MOD WAS (2)

GAEC EO RELEASE: JK 1/7/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-14(44), DVT	(70) TM5/R(65)
		LTA 3DR/1 (460)	LTA-11 (23)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	PST							
DATE	1-5-70			12/26/69	1/6/70		1/6/70	1/8/70

PRIORITY: C
DRAWING TITLE: CHANNEL- DESCENT STAGE- SCIENTIFIC EQUIP. BAY UPPER DECK-CABLE BRACKET SUPPORT
DRAWING NO. LDW280-18375
EO NO. A7

ISSUED BY MARK/G. HANSMANN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LE0280 | EO NO. 1866

CONTROL INFO NO. LDW280C0198

FOR THE FOLLOWING INSTL. & DETAILS WITH N/A* REMOVE LTA-3DR/1(460) REQMTS.:

DWG. NO. & DASH NO.'s.	CHANGE NO.	N/A	DWG. NOMENCLTR.
LDW280-			SEE DWG.
✓ -18374-19(4) **	B1	*LDW280-54679	
✓ -18375-12,-17(4),-19 **	A8		
-18489-11,-13,-15(2),-17,-18,-19 **	A6		
-18460-17,-19,-21,-23,-25 **	A8		
-18461-13(2),-15(2),-19,-21,-22 **	B4		
-18469-11,-13(2),-15(2),-17(2),-19(2) **	A5		
-18470-11,-13,-15,-19,-21 **	A7		
M17884 -13-1(2) **	B3		
LDW280-18506-11,-13,-15,-17,-19(2) **	A6	LDW280-54679	SEE DWG.

* APPLICABLE N/A

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3890 PKG 70 PG. 12

REASON FOR EO: TO EXPEDITE MANUFACTURING OPERATIONS

DESCRIPTION OF EO: FOR** REMOVED LTA-3DR/1 (460) REQUIREMENTS FOR N/A LDW280-54679

GAEC EO RELEASE: Ⓡ

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	P8t				NM			
DATE	3-20-70			3/20/70	3/23/70		3/24/70	3/24/70
	VDI							

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LE0280

EO NO.: 1866

CDR.032470

ISSUED BY A. GROSS / G. HANSMANN SECTION VEH. DES. INT. GROUP NO. 335 PL 25

LDW280-18378

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54577	DVT	1
	LDW280-54577	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
LM	LDW280-54577	LM-4 (34)	1
PART NO. LDW280-18378-11		GAEC SCH NO. 51-2	

WORK PKG FUNCTON NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO.	JK(001)		
207	MP-16	9/8/67	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD1433 CCA 586

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J.GRIECO 7-19-67	RELIABILITY	
LAYOUT BY	F.MADDEN 7-18-67		
CHECKED BY	JDC 8-23-67		
GR LEADER	9/1/67		
VEH DES INT	9/1/67		
STRUCTURES	WJM 9/6/67	PROJ ENGR	9/1/67
STRUCTURES	9/6/67	REL GROUP	9/7/67
WEIGHTS			

③ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-SCIENTIFIC
EQUIP. SPT.-INBD BEAM

SIZE B
CODE IDENT NO. 26512
LDW280-18378
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR= 9/12/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18378-11	E		WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.028 X 24 1/4 X 44	SEE NOTE #2		

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18378

SCALE NONE

SHEET 2.00

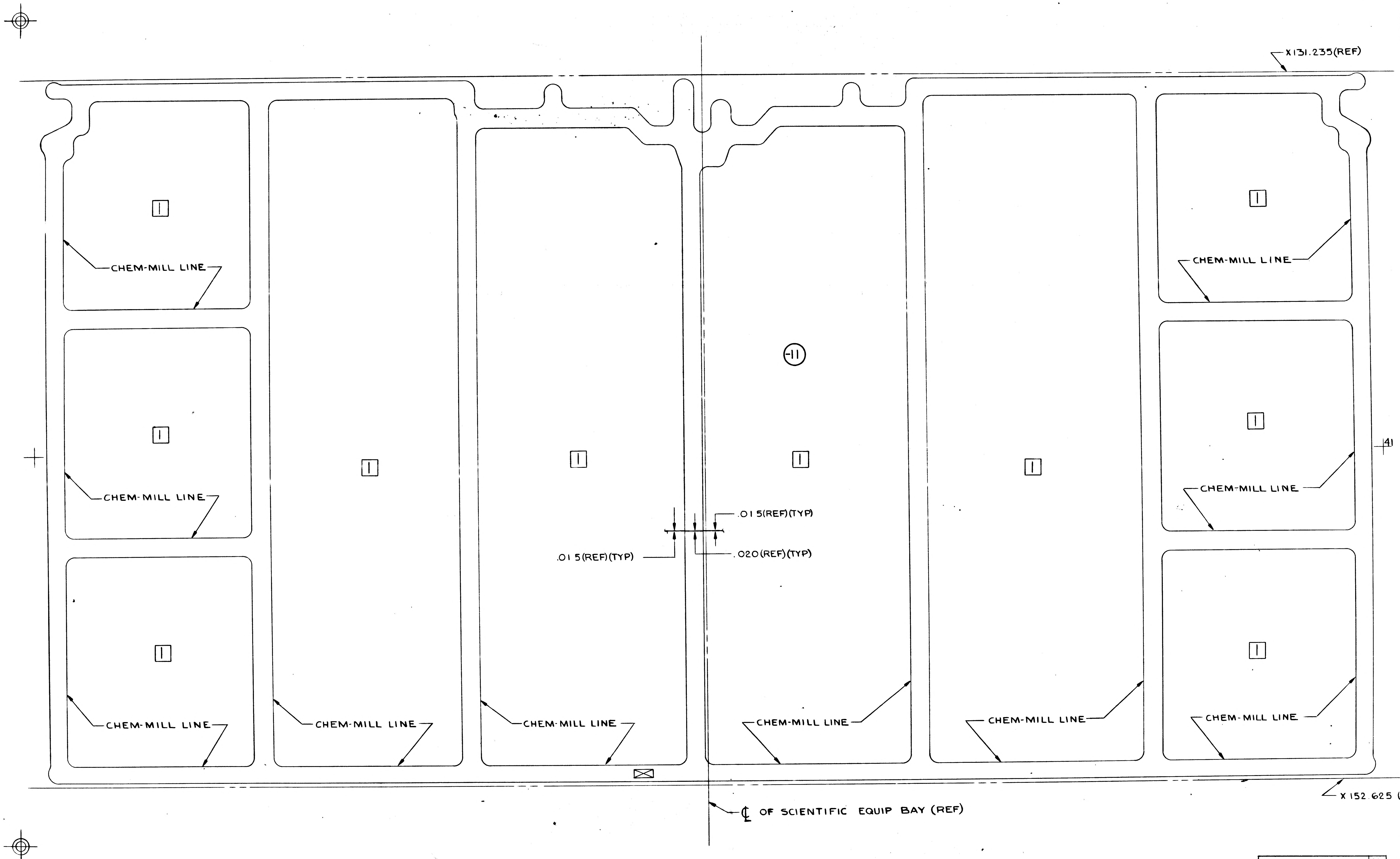
ENG 77.2 5-64

01

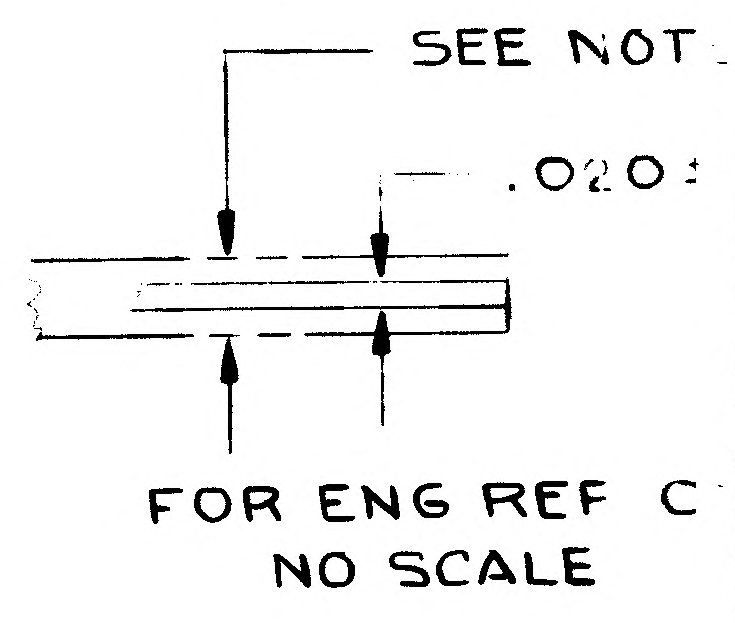
NAS 9-1100

LDW280-18378 SH3

TRAM &
Overlay O.K.
T.S. 8-18-69


X131.235(REF)
CHEM-MILL LINE
1
-11
.015(REF)(TYP)
.020(REF)(TYP)
X 152.625 (REF)
℄ OF SCIENTIFIC EQUIP BAY (REF)
41

NOTES
1. NO TOOLING HOLES PERI
2. FABRICATE -11 PER LPC 280
3. ON INITIAL RELEASE O
FOR LDW280-18378-11
LDW280-17291-15.



FOR ENG REF C
NO SCALE

LDW280-18378-11

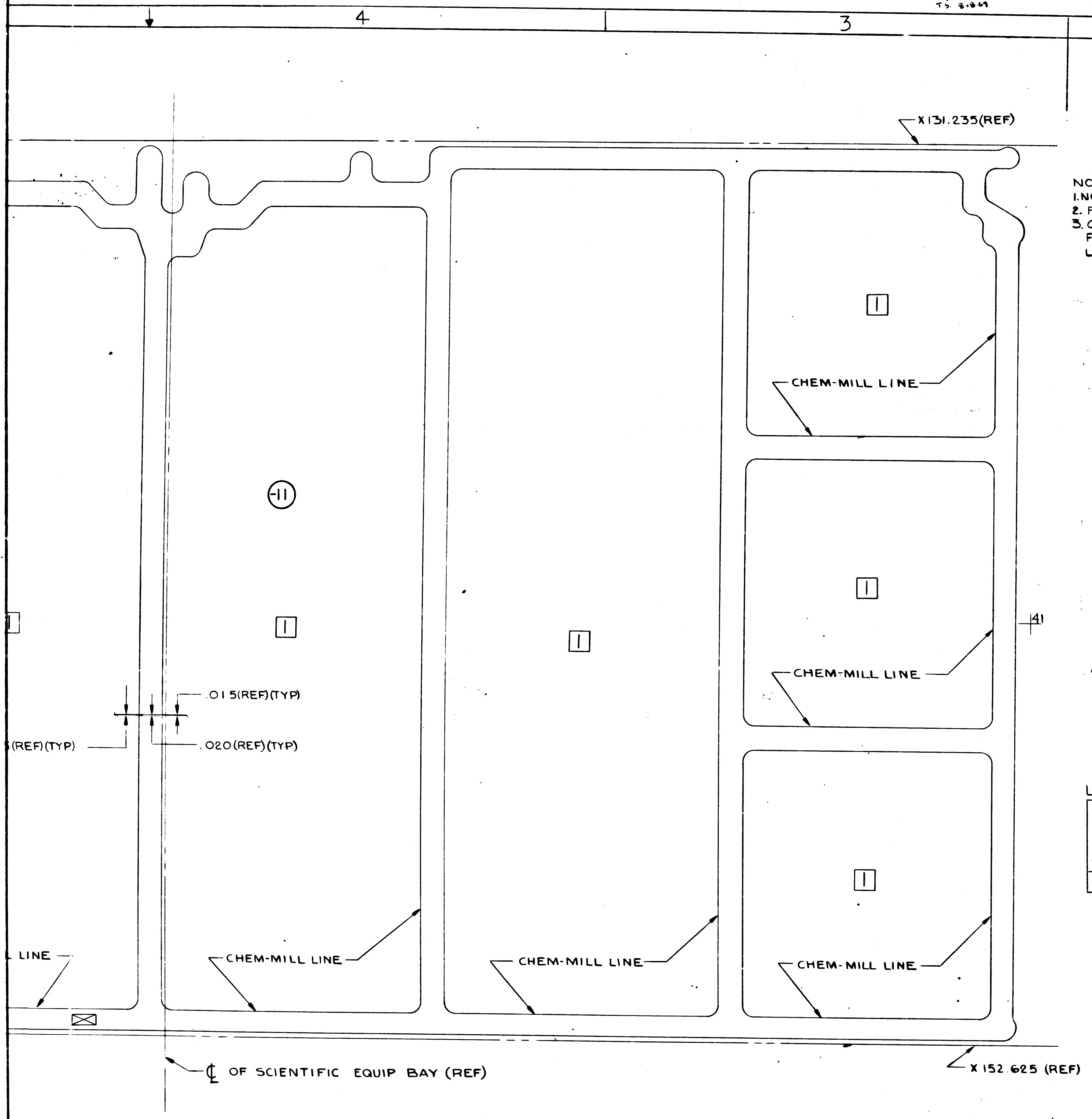
CHEM-MILL LINE TOLERANCE
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING
1	.015 ± .002

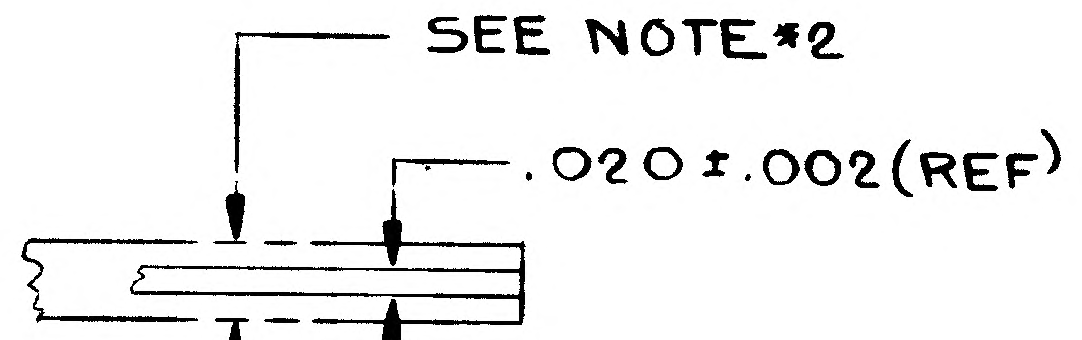
LDW280-18378 SH 3

01/02 NAS 9-1100

Tran &
overlay O.K.
T.J. 8-8-69



NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FABRICATE -11 PER LPC 280-43.
3. ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18378-11 IS SIMILAR TO LDW280-17291-15.



FOR ENG REF ONLY
NO SCALE

LDW280-18378-11

CHEM-MILL LINE TOLERANCE
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.015 ± .002	.005(REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 28x66

PRINTING INFO ONLY
FULL SIZE SHEET AREA (30x78) = 16.25 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 4.06 SQ. FT.
PRINT TRIM LINE

D
C
B
A

LDW280-18378
LDW280-18378

02/02
NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK		
LM	SIZE H	CODE IDENT NO. 26512	LDW280-18378
MODEL OR ENG. ITEM	SCALE FULL		SHEET 3.00

LDW280-18378 SH 3

FOR PHOTO REPRODUCTION 1 2 FR K2

ENG 73-6 6-64

SIM TO LDW 2

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 756
CONTROL INFO NO. LDW280A9807

FOR THE FOLLOWING DRAWINGS, REMOVE DASH NOS. "A" AND REPLACE WITH DASH NO. "B". DASH NO. "B" IS IDENTICAL TO "A" EXCEPT FOR CHEM-MILL THICKNESS .012 $^{+.002}_{-.002}$ WAS .015 ± .002, LTA-3 (13) REQM'TS. N/A AND QUANTITY SAME AS -11.

DWG NO	CHG NO.	TITLE	DASH NO. "A"	DASH NO. "B"
✓ LDW280-18368 ✓	A1	SEE DWG	-11	-13
✓ ↑ -18378 ✓	A1	↑	-11	-13
-18379 ✓	A1		-11	-13
↓ -18381 ✓	A1	↓	-11	-13
LDW280-18382 ✓	A1	SEE DWG	-11	-13

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1433 LCD 2220 CCA 586 3/2

REASON FOR EO: REDESIGN FOR ALSEP

DESCRIPTION OF EO: REMOVED AND REPLACED -"A" WITH -"B" ADDED LTA-3 (13) REQM'TS.

GAEC EO RELEASE: (B) JK 10/17/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
LM	LM-4 (34) THRU LM-15 (45)		
LM	DESIGN VERIFICATION TEST (70)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
✓			✓	10/13/67 B	VD1			10-13-67	10/14/67		10/14/67	10/17/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 756

CDR 10-20-67
ISSUED BY MARZELLA A.F. MARZELLA
SECTION VEHICLE DESIGN & INT GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

ENG 32.1 REV 3-65

DWG. NO. LEO 280 EO NO. 781
CONTROL INFO NO. LDW280A9988

FOR THE FOLLOWING DRAWINGS, REVISE CHEM-MILL TOLERANCES

$.012^{+.003}_{-.002}$ * WAS $.012 \pm .002$

	DWG NO.	DASH NO.	~~CHG~~ CHG. NO	TITLE	DEPTH OF CUT
✓	LDW280- 18368	-13	A2	SEE DWG	.012 (REF)
✓	LDW 280- 18378	-13	A2	SEE DWG	.008 (REF)
	LDW280- 18381	-13	A2	SEE DWG	.008 (REF)
	LDW280- 18340	-15	A3	SEE DWG	.044 (REF)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		LCD 1433CCA586, LCD 2220 CL II ②

5

REASON FOR EO: REDESIGN FOR ALSEP

DESCRIPTION OF EO: $.012^{+.003}_{-.002}$ WAS $.012 \pm .002$ FOR - *

GAEC EO RELEASE: JK 11/1/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-3 (13),	LM-4 (34)	
	THRU	LM-15 (45)	
	& DVT (70)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	10/24/67			10/24/67	10/24/67		10/31	10/31/67
D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	781

11/2(

ISSUED BY R. GORTLER / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1372
CONTROL INFO NO. LDW280B7437

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18369 ✓	A5	SEE DWG
-18370 ✓	A4	↑
-18372 ✓	A4	
-18374 ✓	A4	
-18375 ✓	A4	
-18378 ✓	A4	
-18379	A6	
-18380	A3	
-18381	A5	↓
LDW280 -18382	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3587 PKG 54 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: VK 4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				PST	WJH			
DATE	4/1/69			4-2-69	4/8/69		4/9/69	4/14/69

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 1372

052869

ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

LDW280-18379

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	D.V.T (70)	1
		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-54575	LM-4(34)	1

PART NO. LDW280-18379-11

GAEC SCH NO. 51-2

WORK PKG FUNCTION NO. 110 (5)

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO. 207 JK(001) MP-1 9/…

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2

5 ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD1433 CCA586

CONTRACT NO. NAS 9-1100
DRAWN BY J. GARRAFFO 9/23/67
LAYOUT BY F. MADDEN
CHECKED BY 9.25.67
GRP LEADER 9/25/67
VEH DES INT 9/25/67
STRUCTURES WJH 9/26/67
STRUCTURES FEB 9/26
RELIABILITY
PROJ ENGR 9/25
REL GROUP 9-26

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE~SCIENTIFIC EQUIP
SUPPORT~UPPER DECK

SIZE B
CODE IDENT NO. 26512
LDW280-18379
SCALE NONE
SHEET 1.00 OF 5

CDR 10/1/67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18379-11	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.028X26 5/8X58 1/4	SEE NOTE 3		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

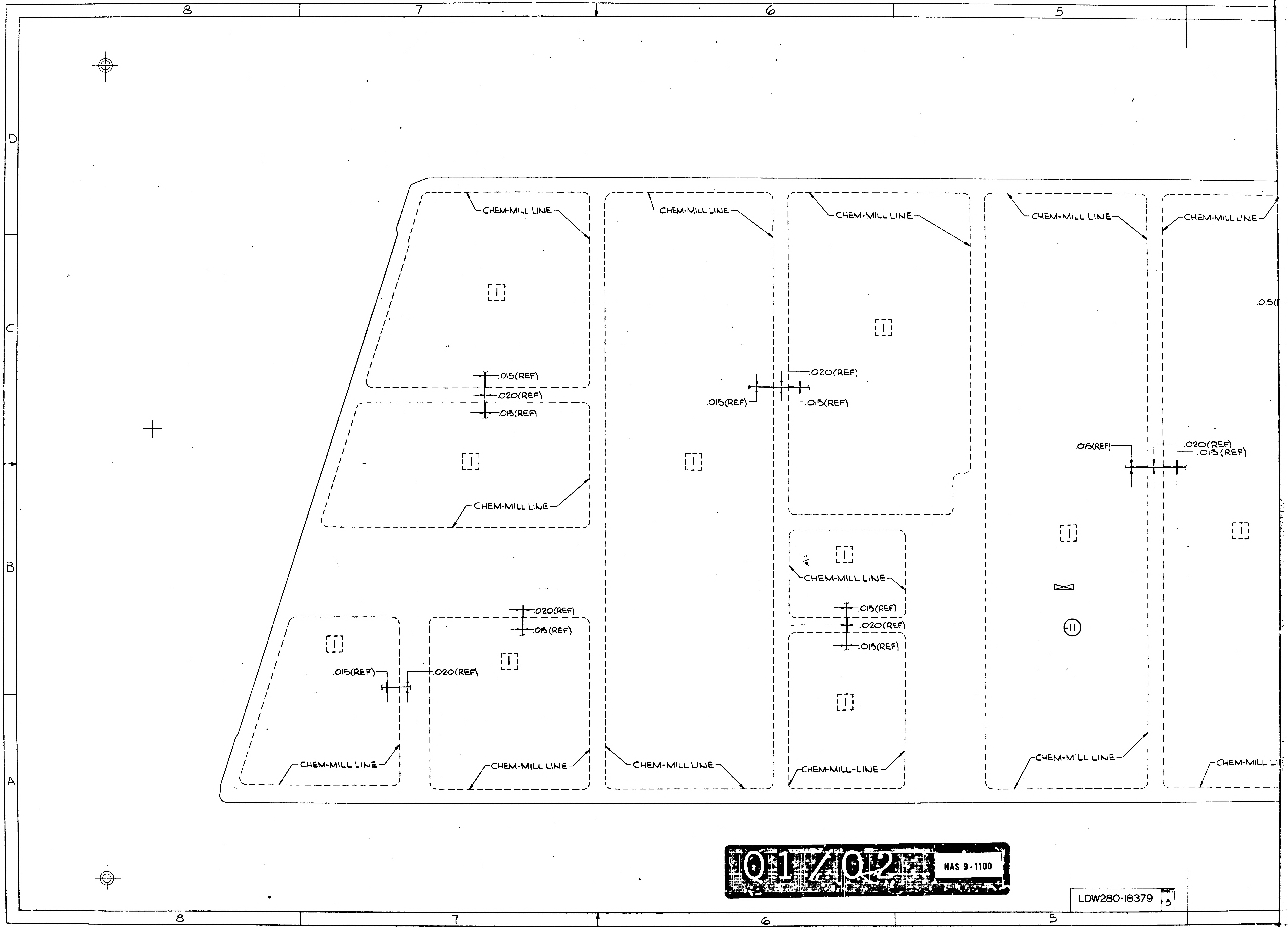
SIZE B
CODE IDENT NO. 26512
LDW280-18379

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


8
7
6
5
D
C
B
A
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
.015(REF)
.020(REF)
.015(REF)
.015(REF)
.020(REF)
.015(REF)
.015(REF)
.020(REF)
.015(REF)
.015(REF)
.020(REF)
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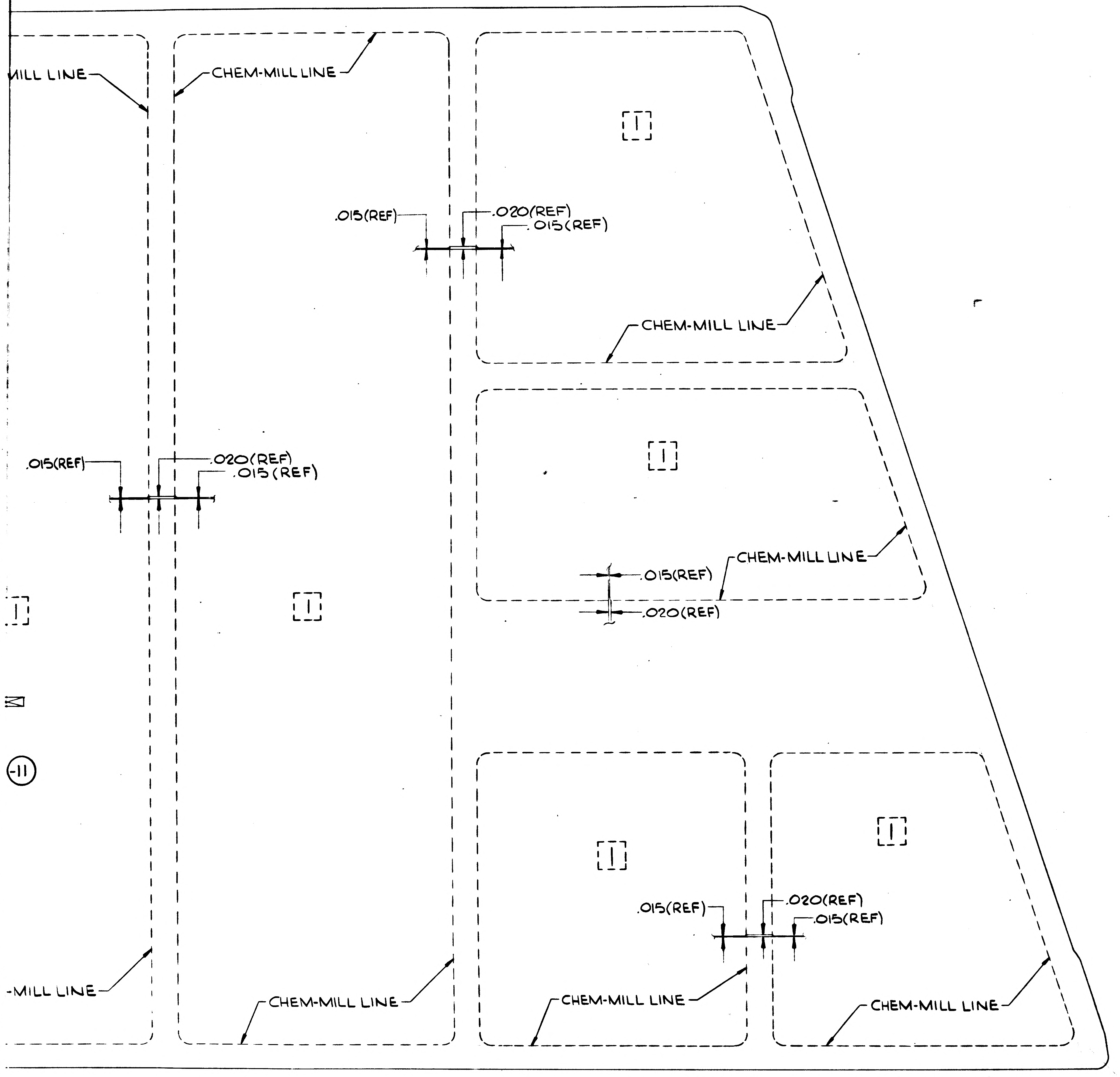
1
11
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL-LINE
CHEM-MILL LINE
CHEM-MILL LI

Q1/Q2

NAS 9-1100

LDW280-18379 SHEET 3

TRIM OK
4/22/67



MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
.015(REF)
.020(REF)
.015(REF)
CHEM-MILL LINE
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.015(REF)
.020(REF)
.015(REF)
CHEM-MILL LINE
.015(REF)
.020(REF)
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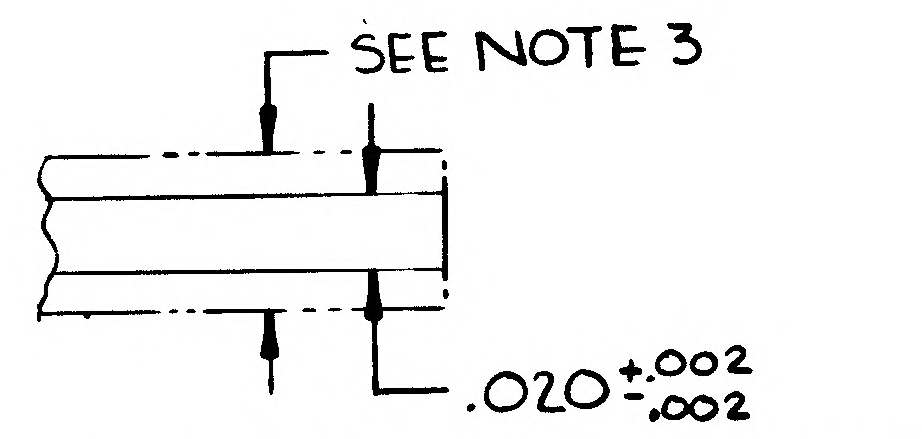
.015(REF)
.020(REF)
.015(REF)
-11
-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. ON INITIAL RELEASE OF THIS DWG., TOOLING FOR LDW280-18379-11 IS SIMILAR TO LDW280-17289-15
3 FABRICATE -11 PER LPC280-43



SEE NOTE 3
.020 +.002 -.002

FOR ENGR. REF ONLY~NO SCALE

LDW280-18379-11

CHEM-MILL LINE TOLERANCE: ± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED) ± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040		
SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
I	$.015^{+.002}_{-.002}$	.005(REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 98) = 24.0 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.0 SQ. FT.

PRINT TRIM LINE

LDW280-18379

LDW280-18379

02/02

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-18379	
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2

LDW280-18379 SHEET 3

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 756
CONTROL INFO NO. LDW280A9807

FOR THE FOLLOWING DRAWINGS, REMOVE DASH NOS. "A" AND REPLACE WITH DASH NO. "B". DASH NO. "B" IS IDENTICAL TO "A" EXCEPT FOR CHEM-MILL THICKNESS $.012 {}^{+.002}_{-.002}$ WAS .015 ± .002, LTA-3 (13) REQM'TS.
N/A AND QUANTITY SAME AS -11.

DWG NO	CHG NO.	TITLE	DASH NO. "A"	DASH NO. "B"
✓ LDW280-18368 ✓	A1	SEE DWG	-11	-13
✓ -18378 ✓	A1		-11	-13
✓ -18379 ✓	A1		-11	-13
-18381 ✓	A1		-11	-13
LDW280-18382 ✓	A1	SEE DWG	-11	-13

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 LCD 2220 CCA 586	3

REASON FOR EO: REDESIGN FOR ALSEP

DESCRIPTION OF EO: REMOVED AND REPLACED -"A" WITH -"B" ADDED LTA-3 (13) REQM'TS.

GAEC EO RELEASE: ® JK 10/17/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
LM	LM-4 (34) THRU LM-15 (45)		
LM	DESIGN VERIFICATION TEST (70)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY		[illegible]			[illegible]	[illegible]		[illegible]	[illegible]
DATE		10/13/67			HB 10-13-67	10/13/67		10/14/67	10/17/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 756

CDR 10-20-67
ISSUED BY MARZELLA A.F. MARZELLA
SECTION VEHICLE DESIGN & INT GROUP NO. 335 PL 25

01

NAS 9-1100

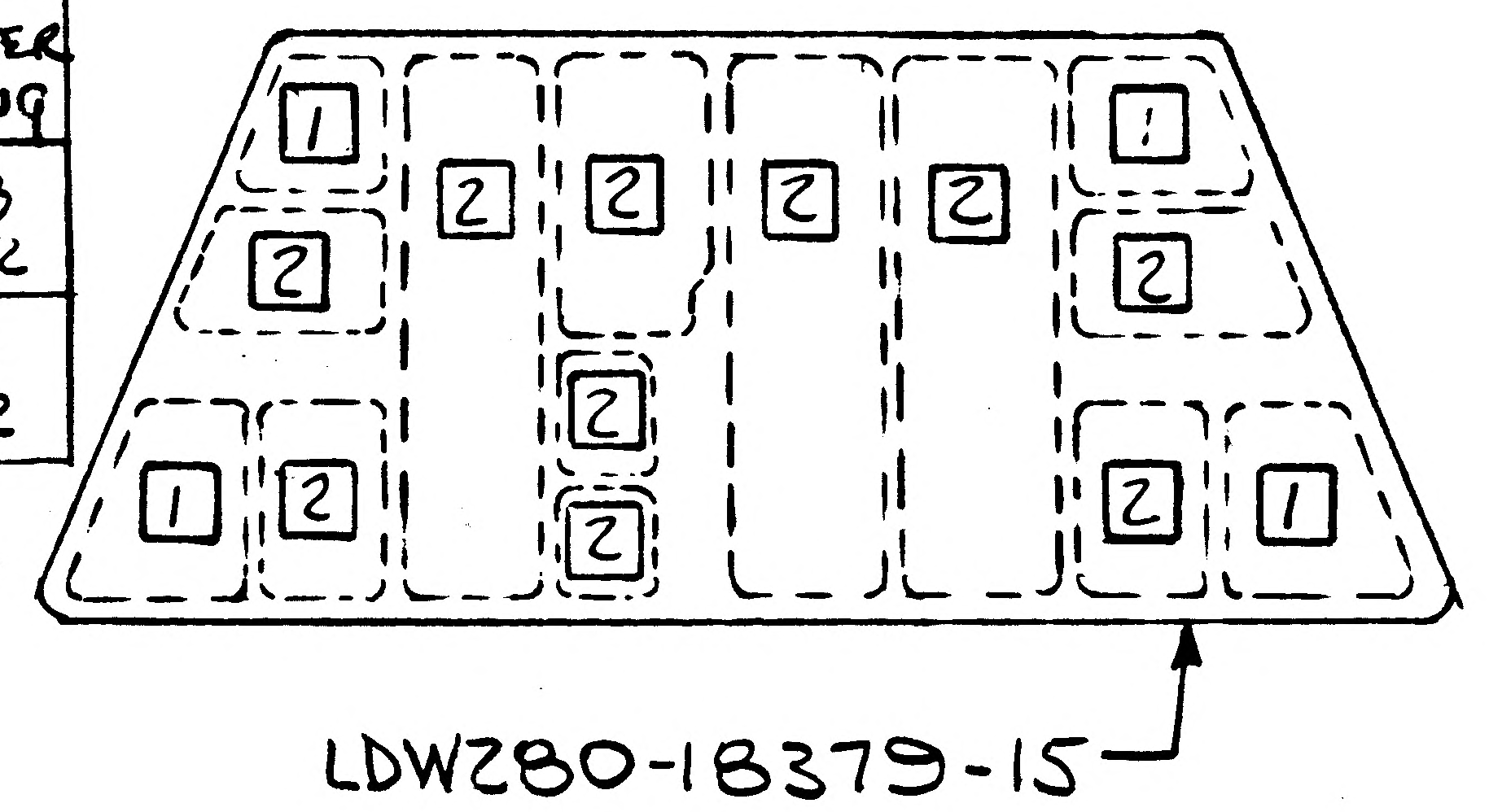
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18379		EO NO.	A2
CONTROL INFO NO. LDW280A9924			

ON LDW280-18379 REMOVE -13 AND REPLACE WITH -15.
-15 WEB IS IDENTICAL TO -13 EXCEPT FOR CHEM-MILL THICKNESSES.

LDW280-18379-15	
SYMBOL	THICKNESS AFTER CHEM-MILLING
1	.020 $^{+.003}_{-.002}$
2	.012 $^{+.003}_{-.002}$



NOTE:
ALL POCKETS
WERE .012 $^{+.002}_{-.002}$
ON -13

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA586 5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INCREASED STRENGTH REQ'D (ALSEP)	REMOVED AND REPLACED -13 WITH -15	JK 10/26/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-	3 (13)	
LM	LM-4(34)	THRU LM-15(45)	
LM	DESIGN VERIFICATION TEST (70)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE								
✓			✓	DATE	10/20/67			10/24/67	10/23/67		10/24/67	10/25/67
				D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB-DESCENT STAGE - SEQ BAY UPPER DECK	LDW280-18379	A2

10-20-67
ISSUED BY A.F. MARZELLA
SECTION VEHICLE DESIGN & INT. GROUP NO. 335 PL 25

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NAS 9-1100

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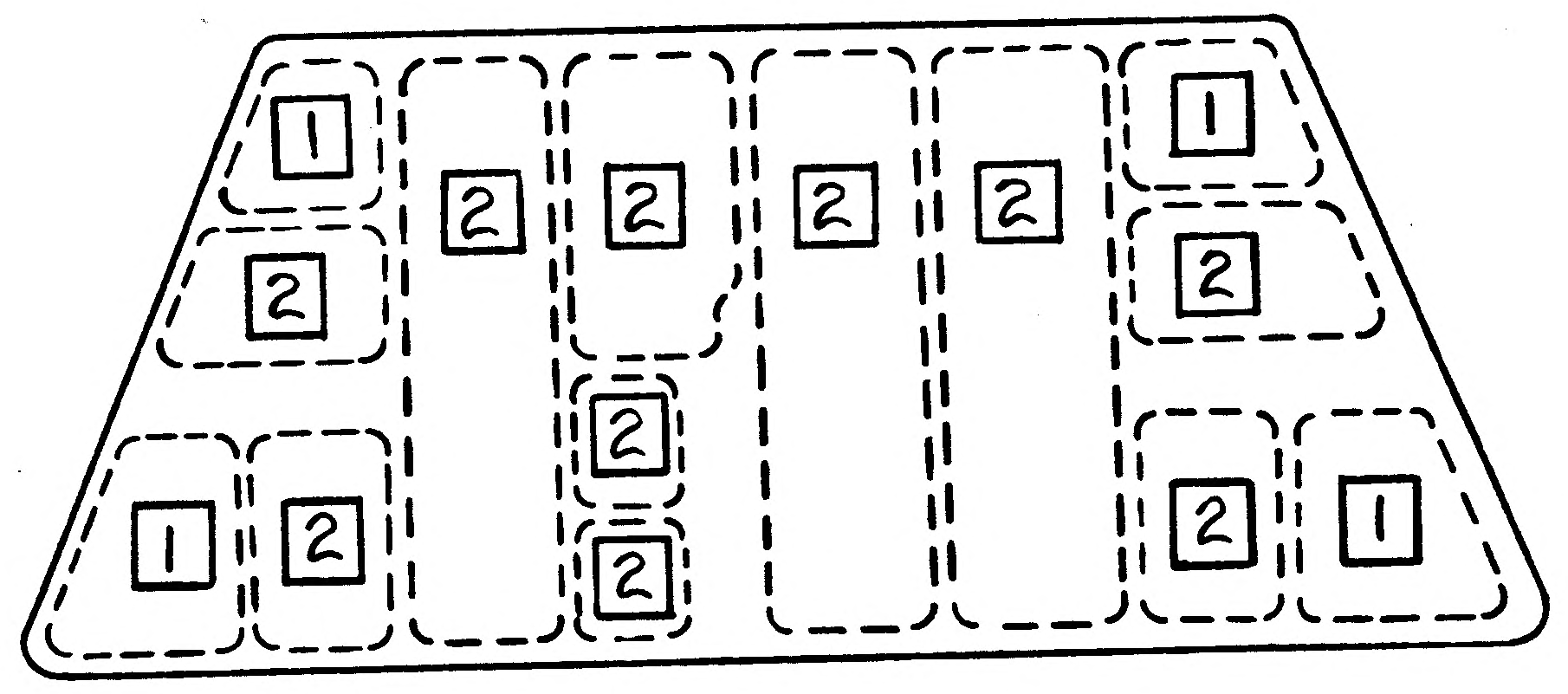
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

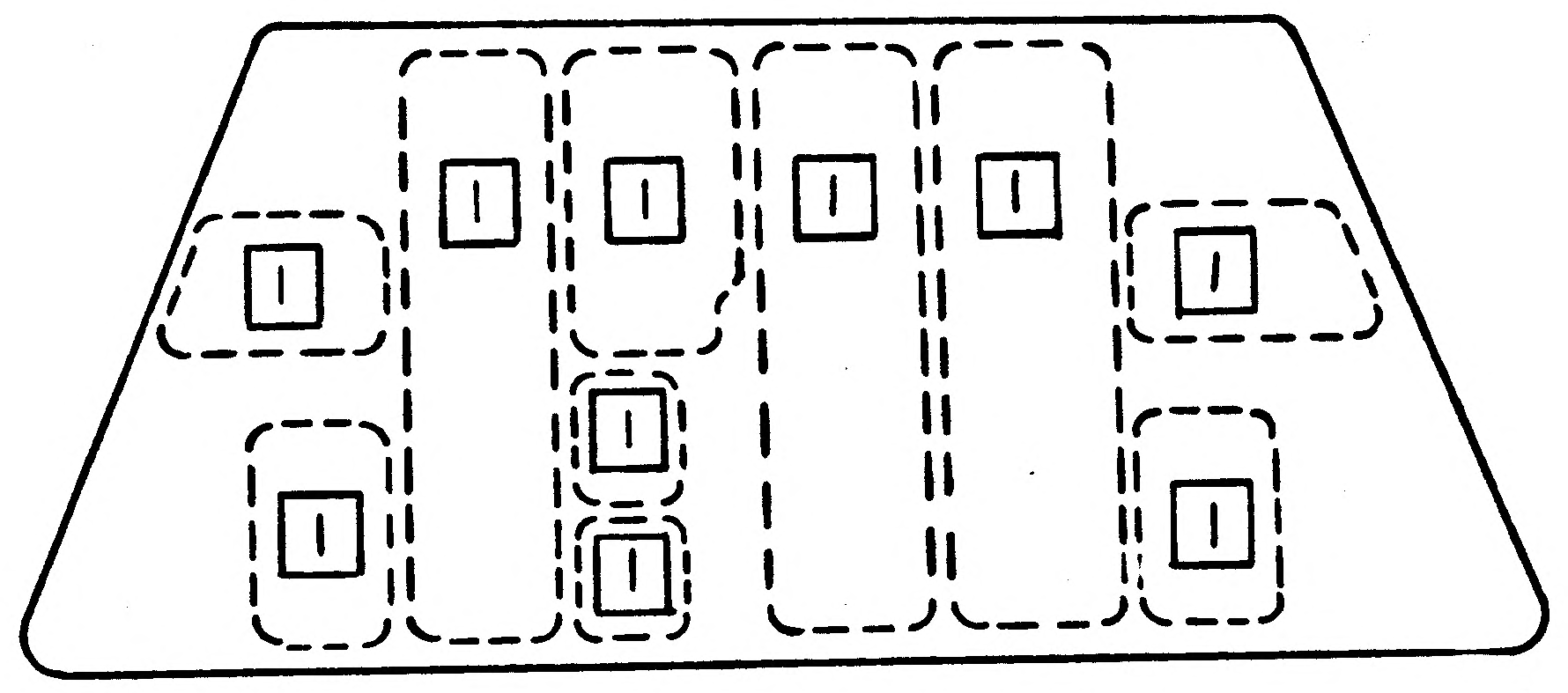
DWG. NO. LDW280-18379 | EO NO. A3
CONTROL INFO NO. LM-2-4126

REFERENCE EO-A2



LDW280-18379-15	
SYMBOL	THICKNESS AFTER CHEM-MILLING
1	.020 $^{+.003}_{-.002}$
2	.012 $^{+.003}_{-.002}$

(WAS)



LDW280-18379-15	
SYMBOL	THICKNESS AFTER CHEM-MILLING
1	.012 $^{+.003}_{-.002}$

(REVISE TO)

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 1433 CCA 586	2

REASON FOR EO: INCREASED STRENGTH REQD (ALSEP) BASE MATL THICKNESS IS .020

DESCRIPTION OF EO: REFERENCE EO-A2 FOR -15, REVISED CHEM-MILLING SYMBOLS, 1 WAS .020 $^{+.003}_{-.002}$ & DELETED 2

GAEC EO RELEASE: JK 03181

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13), LM-4(34)	
		THRU LM-15(45)	
		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	JaP			—	MBJ	CH	JaP	
DATE	11/1/67			—	10/31/67	10/31/67	11/1/67	11-4-67
D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: WEB~DESCENT STAGE~SCIENTIFIC EQUIPMENT SUPPORT~UPPER DECK
DRAWING NO.: LDW280-18379
EO NO.: A3

ISSUED BY LIAISON J. MALONEY 10/31/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

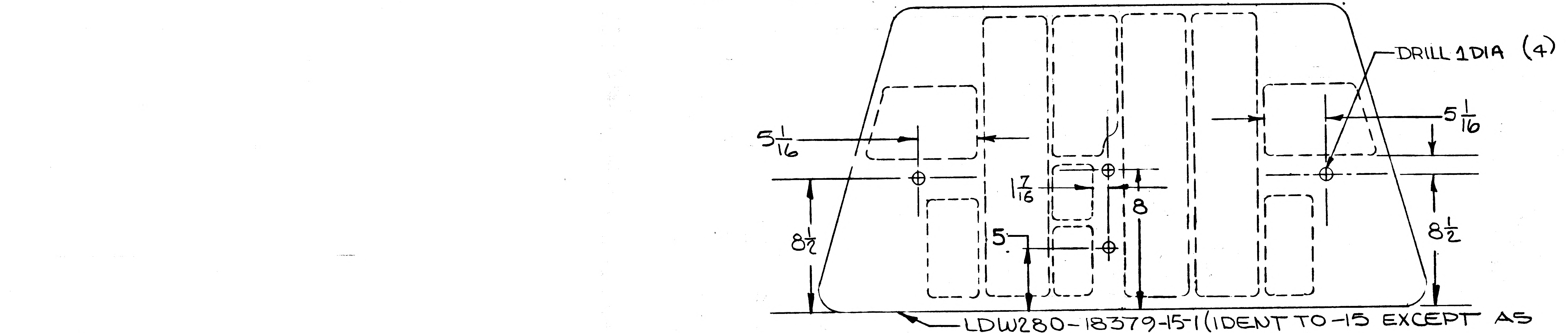
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18379
EO NO. A4
CONTROL INFO NO. LDW280B2507

ON -15 REMOVE LM-4(34) THRU LM-15(45), DVT(70) REQMTS
ADD -15-1, EFF LM-4(34) THRU LM-15(45), DVT(70), N/A LDW280-54575, 1 REQD/MOD



LDW280-18379-15-1 (IDENT TO -15 EXCEPT AS NOTED)

-15 MAY BE REWORKED

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1433 CCA 586 PKG 13 (5)

REASON FOR EO: TO FACILITATE INSTL OF PULLEYS

DESCRIPTION OF EO: ON -15 REMOVED LM-4(34) THRU LM-15(45), DVT(70) REQMTS ADDED -15-1

GAEC EO RELEASE: JK 3/19/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU LM-15 (45),	
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	JAS							
DATE	3/14/68			3/13/68	3/16/68	3/8/68	3/19/68	
G	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: WEB~DS~SCIENTIFIC EQUIP SUPT~ UPR DECK
DRAWING NO. LDW280-18379
EO NO. A4

3-22-68
ISSUED BY BELEV / HANSMANN X3352 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 969
CONTROL INFO NO. LDW280B3375

FOR THE FOLLOWING PARTS ADD TM 5/R(65) REQUIREMENTS,
N/A LDW280-54575 FOR THE QUANTITIES NOTED

DWG NO *	TITLE	QUANT REQD	CHANGE NO.
LDW280-17712-13	SEE DWG	1	A7 ✓
-14		1	
-21		1	
-17712-22		1	
-17714-11		2	C6 ✓
-13		2	
-19		4	
-21		8	
-23		2	
-25		2	
-27		2	
-17714-29		2	
-17442-11		1	B4 ✓
-17442-13		1	
-18346-11		1	A2 ✓
-18346-13		3	
-18346-15		1	
-18356-13		1	A8 ✓
-19		1	
-31-1		1	
-23		2	
-33		1	
-34		1	
-35		1	
-36		1	
-18356-37		4	
-17294-23		1	B6 ✓
-17294-27		1	
-18370-17		1	A3 ✓
-19		1	
-21		1	
LDW280-18370-22	SEE DWG	1	

DWG NO. *	TITLE	QUANT REQD	CHANGE NO.
	SEE DWG		
LDW280-18322-11		1	A3 ✓
-12		1	
-13		1	
-18372-14		1	
-18487-11		1	A1 ✓
-18379-15-1		1	A5 ✓
M17266-3		1	C6
M17266-4		1	
M17629-1		1	B5
M17640-1		1	B8
M17640-2		1	
M17748-13		1	A4
M17766-11		1	A3
M17769-11		1	A2
M17952-11		1	A1
M17806-11		1	A2
-18349-13-1		1	A8
-14-1		1	
-15		1	
-16		1	
-23		1	
-24		1	
-27		1	
-28		1	
-29		1	
LDW280-18349-30	SEE DWG	1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2U (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON-(*) ADDED TM-5/R(65) REQMTS

GAEC EO RELEASE: K 5/23/68

MODEL: LM

EFFECTIVITY — PROCURING ACTIVITY NO.: — GAEC UNIT NO.: TM-5/R(65) — SUB CONTR UNIT NO.:

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP NOT REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	DEPT
APPROVED BY								
DATE	5/13/68			5-13-68			5/13/68	

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 969

5-17-68
ISSUED BY T. COTTER 3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] NO. LEO 280 | EO NO. 1552
CONTROL INFO NO. LDW 280B 8113

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

	DRAWING No *	TITLE	CHANGE No
✓	LDW280-18365	SEE DWG	B1
✓	368		B2
✓	369		A6
✓	370		A5
✓	372		A5
✓	374		A5
✓	375		A5
✓	378		A5
✓	379		A7
	LDW280-18380	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 32 & 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SWB 8-13-69; JK 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	RBT				N			Bauman
DATE	7-29-69			7/29/69	8/2/69		8/7/69	8/14/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1552

8-26-69 ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1647
CONTROL INFO NO. LDW280B - 8453

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
✓	LDW280 - 17712	SEE DRAWING	LDW280-54575	B3
✓	17714		-54575	D4
✓	17442		-54575	B7
✓	18346		-54575	A6
✓	18356		-54575	B3
✓	17294		-54575	C3
✓	18370		~~-23528~~ -54575	A6
✓	18372		-54575	A6
✓	18349		-54575	B2
✓	18379		-54575	A8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 9 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: SB 8-29 / JK 8/28/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY	OJT			W/H			
DATE	8-8-69			8/14/69	8/14/69		8/14/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1647

8-27-69
ISSUED BY F. Olivieri EXT 86098 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18380

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	DESIGN VERIFICATION TEST(70)	1 EA
LM	LDW280-54576	LTA-3(13)	1 EA
↑	↑	LM-15(45)	↑
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
	↓	LM-5(35)	↓
LM	LDW280-54576	LM-4(34)	1 EA

PART NO. LDW280-18380-11,-13 -15,-17,-19 & -21

GAEC SCH NO. 512

WORK PKG FUNCTION NO. 111 (5)

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.0C	2.0C	3.00
REV			
SHEET			
REV			
SHEET			
REV			

LAST SECT LTR USED

LAST DASH NO. USED -21

GRUMMAN REL INFO

PRIM NO. 207 K10C

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ± 1/2°

5 ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433 (CCA586)

ok

DRAWN BY	A. LITVINOFF FH 9-20-67
LAYOUT BY	F. MARZELLA adm 9-27
CHECKED BY	J Karzman 10-17-67
GR LEADER	9/27/67
VEH DES INT	9/27/67
STRUCTURES	10/2/67
STRUCTURES	10/6
WEIGHTS	

RELIABILITY

PROJ ENGR 9/27/67

REL GROUP Taylor 10-21-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-SCIENTIFIC
EQUIPMENT BAY LOWER DECK OUTBOARD

SIZE B

CODE IDENT NO. 26512

LDW280-18380

SCALE NONE

SHEET 1.00 OF 3

CDR 10-6-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18380 -21	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.040 × 3 × 7	T6	88	
		-19	E	TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE #22078 × 1	NONE	88	
		-17	E	CLIP	AL ALLOY SH		7075	.040 × 4 × 5	T6	88	
		-15	E	CLIP			7075	.063 × 4 × 1	T6	88	
		-13	E	WEB			7075	.040 × 7 × 10	T6	88	
		LDW280-18380-11	E	WEB	AL ALLOY SH	QQ-A-250/12	7075	.040 × 8 × 16	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18380

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

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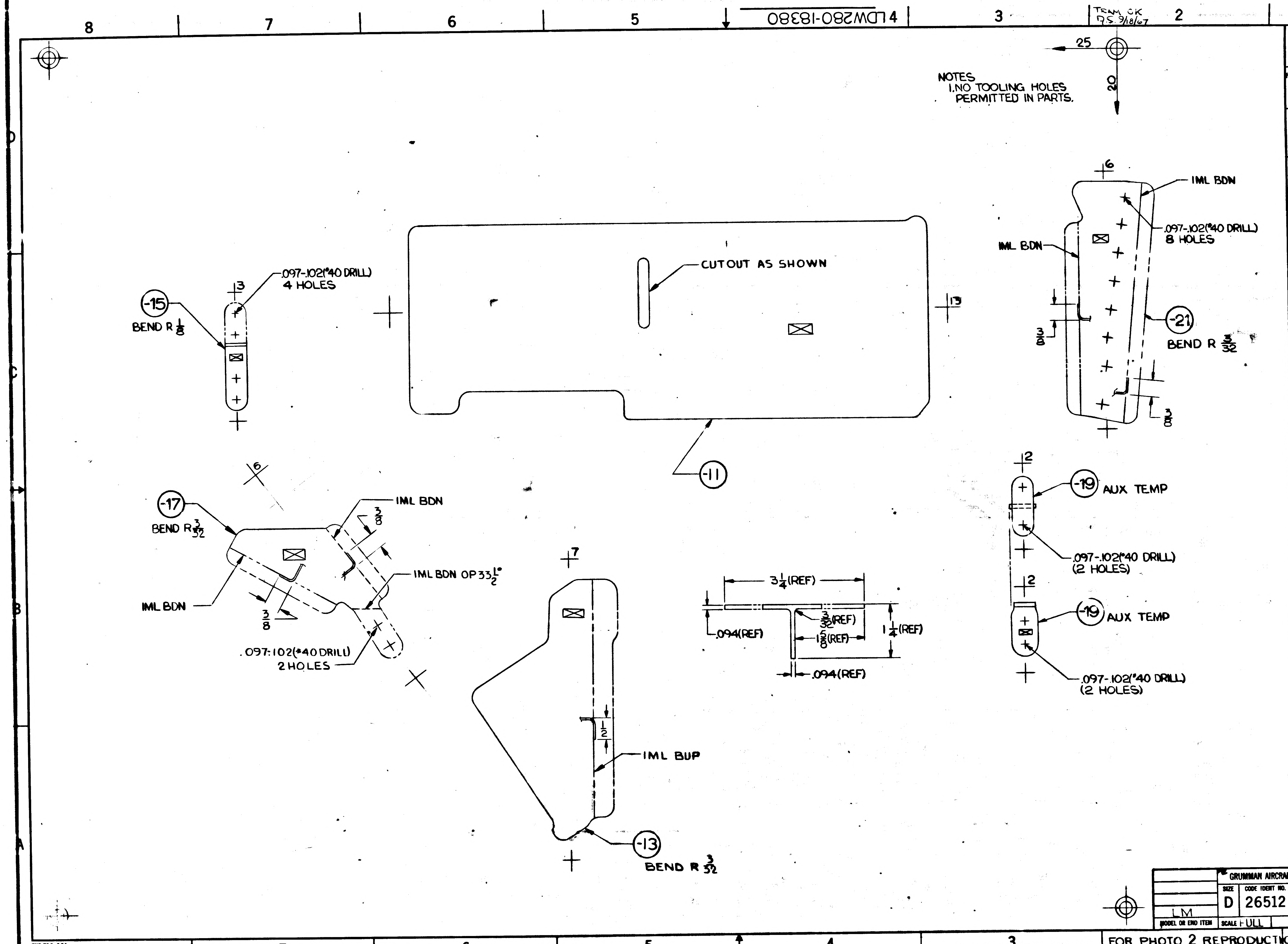
NAS 9-1100

TEAM CK
D.S. 9/18/67



25
20
-15
BEND R $\frac{1}{8}$
.097-.102(#40 DRILL)
4 HOLES
3
CUTOUT AS SHOWN
-11
13
6
IML BDN
IML BDN
.097-.102(#40 DRILL)
8 HOLES
-21
BEND R $\frac{3}{32}$
$\frac{3}{8}$
$\frac{3}{8}$
-17
BEND R $\frac{3}{32}$
IML BDN
$\frac{3}{8}$
IML BDN OP $33\frac{1}{2}$°
IML BDN
$\frac{3}{8}$
.097-.102(#40 DRILL)
2 HOLES
7
$\frac{1}{2}$
IML BUP
-13
BEND R $\frac{3}{32}$
$3\frac{1}{4}$(REF)
.094(REF)
$\frac{3}{32}$(REF)
$1\frac{5}{8}$(REF)
$1\frac{1}{4}$(REF)
.094(REF)
2
-19
AUX TEMP
.097-.102(#40 DRILL)
(2 HOLES)
2
-19
AUX TEMP
.097-.102(#40 DRILL)
(2 HOLES)

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

LDW280-18380

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
LM MODEL OR END ITEM	SIZE D	CODE IDENT NO. 26512	LDW280-18380
	SCALE FULL		SHEET 3.00

FOR PHOTO 2 REPRODUCTION

K2

01 NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 943
CONTROL INFO NO. LDW280B3241

FOR THE FOLLOWING PART NO'S. ADD TM-5/R(65) REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9 ✓
-17623-19	↑	2	
-18512-11		4	B1 ✓
-17711-25		1	C9 ✓
-17711-27		1	
-17792-21		1	B9 ✓
-17792-23		1	
-18340-15		1	·A4 ✓
-18342-11		1	A3 ✓
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2 ✓
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3 ✓
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2 ✓
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16	↓	1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13	↑	1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13	↓	1	·A1
LDW280-18478-15	SEE DWG.	1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3075 CCA 586 PKG 2G (R) (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC C EO RELEASE: K 5/16/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	JAS							
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5/16/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO. LEC 280

EO NO. 943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1372
CONTROL INFO NO. LDW280B7430		

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18369	✓	A5	SEE DWG
-18370	✓	A4	
-18372	✓	A4	
-18374	✓	A4	
-18375	✓	A4	
-18378	✓	A4	
-18379	✓	A6	
-18380	✓	A3	
-18381		A5	
LDW280 -18382		A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 6 CCA 1821 (3)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: VK 4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				PSF				
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/11/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1372

ISSUED BY 052869 MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

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NAS 9-1100

LDW280-18381

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23578	DVT (70)	1
LM	LDW280-23578	LM-15(45)	1
		LM-14 (44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-23578	LM-4(34)	1

PART NO. LDW280-18381-11
GAEC SCH NO. 51-2

WORK PKG FUNCTION NO. 110 (3)

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED
LAST DASH NO. USED -11

GRUMMAN REL^C INFO
PRIM NO. JK(001)
207 mP-16- 9/18/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD#1433, CCA586

DRAWN BY	J.GARRAFFO 8/21/67
LAYOUT BY	MARZELLA asm
CHECKED BY	J Kastzman 8-24-67
GR LEADER	J Stralecki 9/14/67
VEH DES INT	J. Pusateri 9/15/67
STRUCTURES	M. S. 9/18/67
STRUCTURES	FEB 9/1
WEIGHTS	
PROJ ENGR	9/15
REL GROUP	9/18/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE~SCIENTIFIC
EQUIP. SPT & BHD

SIZE B
CODE IDENT NO. 26512
LDW280-18381
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 10-1-67

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18381-11	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.028 x 27 x 25	SEE NOTE 2		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18381

SCALE NONE | SHEET 2.00

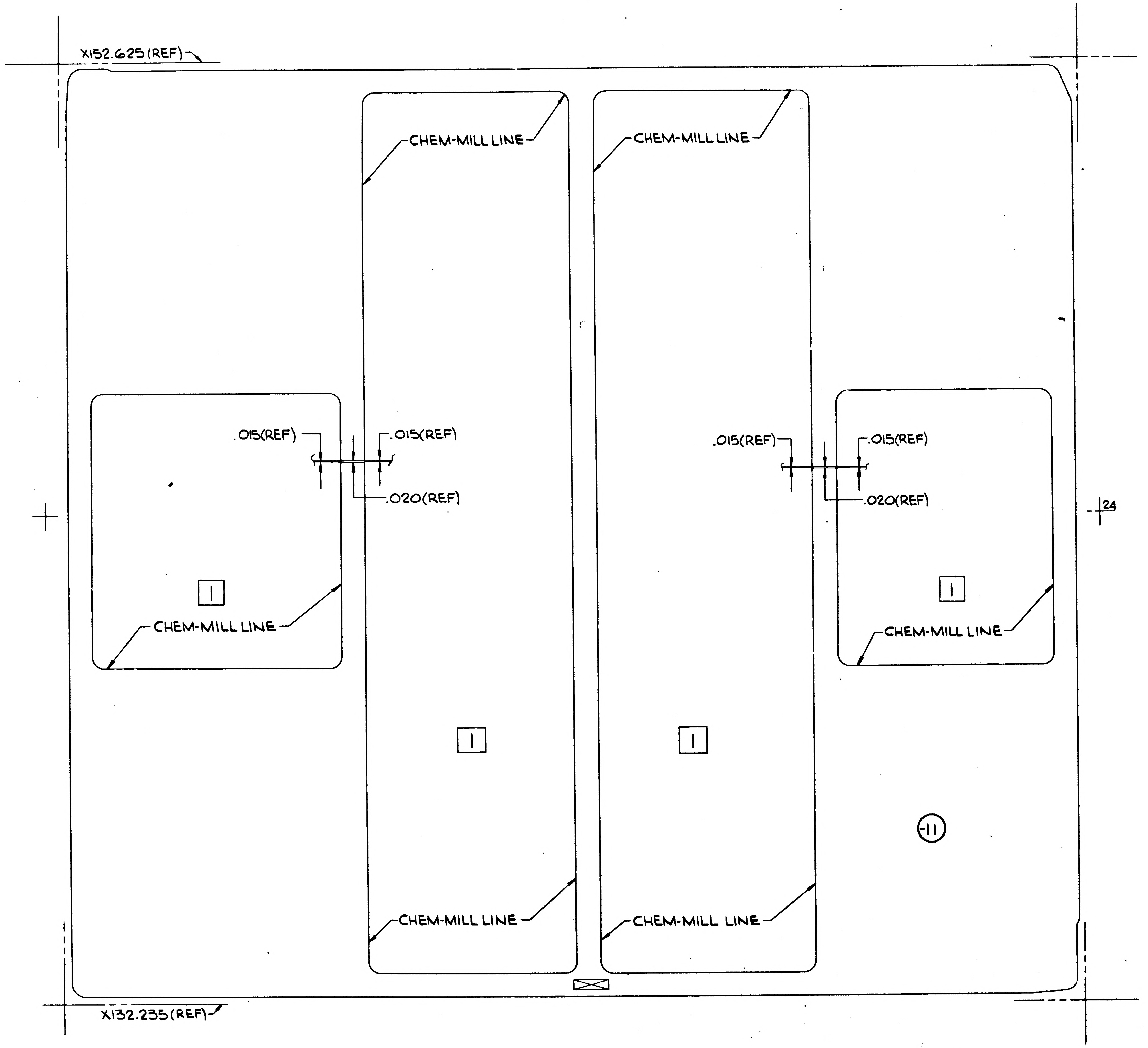
ENG 77.2 7-65

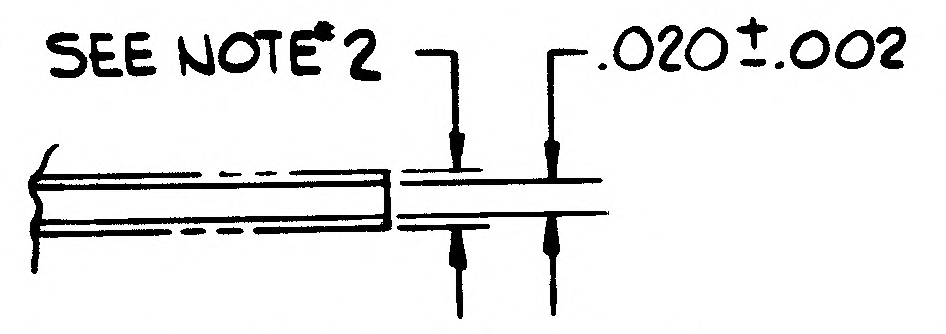
01

NAS 9-1100

OVERLAY & TRAM. OK
T.L. 8·17·67

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FABRICATE PER LPC280-43 FOR -11.
3. ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18381-11 IS SIMILIAR TO LDW280-17292-15.





FOR ENGRG REF ONLY
NO SCALE

LDW280-18381-11

CHEM-MILL LINE TOLERANCE
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.015 ±.002	.005(REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN. NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01 NAS 9-1100

THIS DWG CONTAINS CHEM-MILLED PARTS

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

	SIZE	CODE IDENT NO.	
LM	E	26512	LDW280-18381
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

LDW280-18381

LDW280-18381

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280		EO NO. 781
CONTROL INFO NO. LDW280A9988		

FOR THE FOLLOWING DRAWINGS, REVISE CHEM-MILL TOLERANCES

$.012^{+.003}_{-.002}$ WAS .012 ± .002
*

	DWG NO.	DASH NO.	CHG. NO	TITLE	DEPTH OF CUT
✓	LDW280- 18368	-13	A2	SEE DWG	.012 (REF)
✓	LDW 280- 18378	-13	A2	SEE DWG	.008 (REF)
✓	LDW280- 18381	-13	A2	SEE DWG	.008 (REF)
	LDW280- 18340	-15	A3	SEE DWG	.044 (REF)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		LCD 1433CCA586, LCD 2220 CL II ①

5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REDESIGN FOR ALSEP	$.012^{+.003}_{-.002}$ WAS .012 ± .002 FOR-*	JK 11/1/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM	LTA-3 (13),	LM-4 (34)	
	THRU	LM-15 (45)	
	& DVT (70)		

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY								
DATE	10/24/67			10/24/67	10/24/67		10/31	10/31/67
D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	781

11/2(
ISSUED BY R. GORTLER / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 957
CONTROL INFO NO. LDW280B 3197

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMTS
N/A LDW280-23578 FOR QUANTITIES NOTED:

DRAWING NO *	TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18381-13	SEE DWG	2	A4
-17882-11		1	B3
-17882-13		1	
-17882-15		1	
-17882-19		2	
-17882-21		1	
-17883-11		1	B6
-17883-13		1	
-17883-15		2	
-17883-17		2	
-17623-13		4	C1
-17623-15		1	
-17623-23		1	
-18370-17		1	A2
LDW280 M 17628-3	SEE DWG	1	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3075 CCA 586 PKG 2P (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS

DESCRIPTION OF EO: ON-* ADDED TM-5/R(65) REQMTS

GAEC EO RELEASE: C JK 5/18/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQ'D: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY						W/H			
DATE	5/13/68			5-13-68	5/		5/13/68	5-18-68	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CCM~~	

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 957

5-17-68
ISSUED BY I COTTER x3352 / P THORJUSEN SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280		EO NO. 1562
CONTROL INFO NO. LDW 280B 8114		

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18381	SEE DWG	A6
382		A5
386		A4
387		A5
388		A5
389		B1
390		A5
391		A4
392		A4
LDW280-18401	SEE DWG	A5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 33	(5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (123) REQMTS

GAEC EO RELEASE: E LWB 8-13-69; JK 8/11/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP	DATE	7-29-69			8/1/69	N 8/2/69		7/2/9
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

Bauman 8/15/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1562

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18382

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23579	DVT(70)	1
LM	LDW280-23579	LM15(45)	1
		LM14(44)	1
		LM13(43)	1
		LM12(42)	1
		LM11(41)	1
		LM10(40)	1
		LM9(39)	1
		LM8(38)	1
		LM7(37)	1
		LM6(36)	1
		LM5(35)	1
LM	LDW280-23579	LM4(34)	1
PART NO. LDW280-18382-11		GAEC SCH NO. 51-2	

WORK PKG. FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO.	JK(001)		
207	mp. 16	9/8/67	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 1433 CCA586

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	R.FEGER 8-21-67	RELIABILITY	
LAYOUT BY	MARZELLA 8-14-67		
CHECKED BY	WCG 8/28/67		
GR. LEADER	9/5/67		
VEH DES INT	9/11/67		
STRUCTURE	9/6/67	PROJ ENGR	9/7
STRUCTURE	9/6/67	REL GROUP	9/7/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE SCIENTIFIC
EQUIP LH END CLOSURE

SIZE	CODE IDENT NO.	
B	26512	LDW280-18382

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 10-1-67

01

NAS 9-1100

								LDW280-18382-11	E	WEB	AL ALY SH	QQ-A-250/12	7075-T6	.032×17⅜×25⅞	SEE NOTE 2	SEE NOTE 2	
QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18382

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

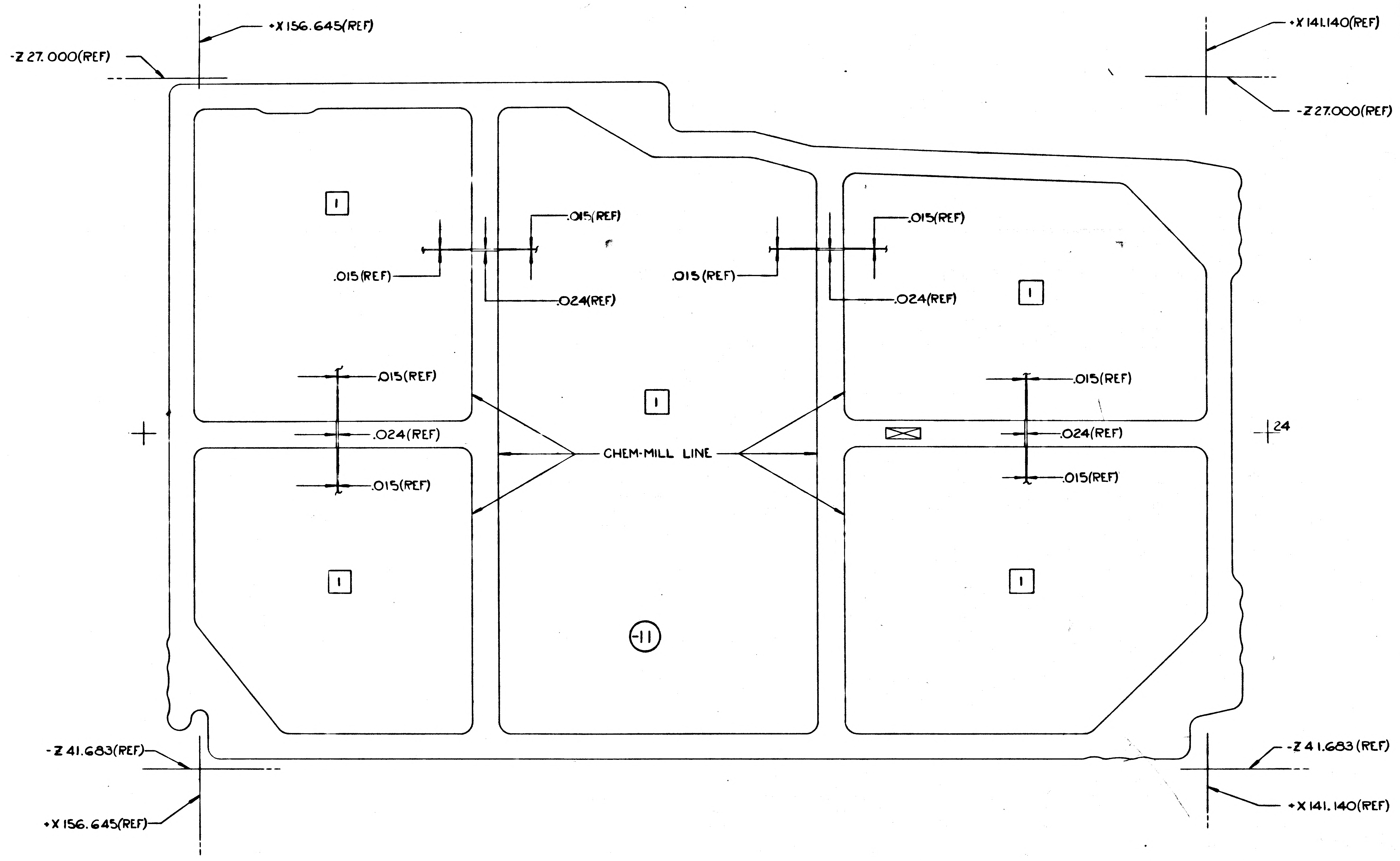
01

NAS 9-1100

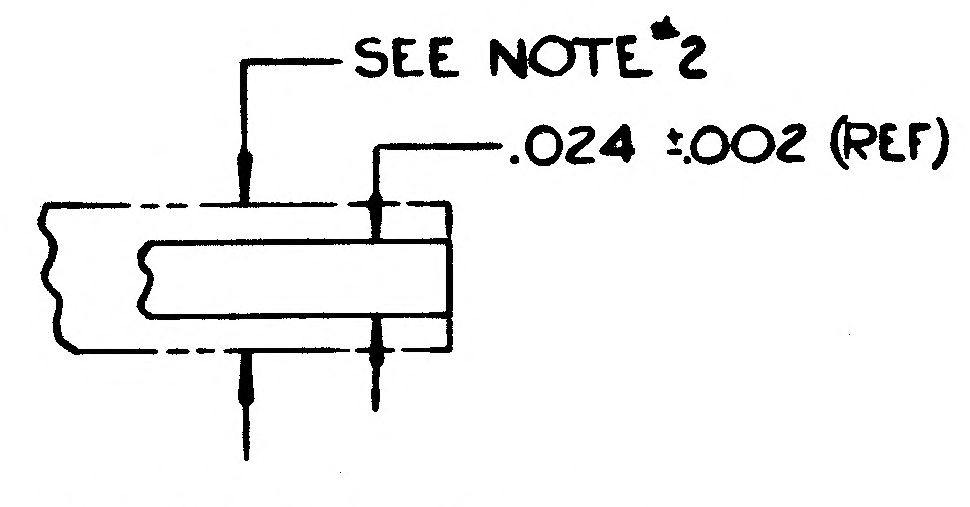
TRAM OK 95 8-15-67

GEO RFC 8/17/67

NOTES:
1. NO TOOLING HOLES PERMITTED IN PART
2. FABRICATION OF -11 PER LPC 280-43.
3. UPON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18382-11 IS SIMILAR TO LDW280-17884-11


-Z 27.000(REF)
+X 156.645(REF)
+X 141.140(REF)
-Z 27.000(REF)
.015(REF)
.015(REF)
.024(REF)
.015(REF)
.015(REF)
.024(REF)
1
1
1
.015(REF)
.024(REF)
.015(REF)
CHEM-MILL LINE
.015(REF)
.024(REF)
.015(REF)
24
1
1
-11
-Z 41.683(REF)
+X 156.645(REF)
-Z 41.683(REF)
+X 141.140(REF)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓


SEE NOTE *2
.024 ±.002 (REF)

FOR ENG REF ONLY
NO SCALE

LDW280-18382-11

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	± DEPTH OF CUT
1	.015 +.002 -.002	.009 REF

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

LM	SIZE F	CODE IDENT NO. 26512	LDW280-18382
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 756
CONTROL INFO NO. LDW280A9807

FOR THE FOLLOWING DRAWINGS, REMOVE DASH NOS. "A" AND REPLACE WITH DASH NO. "B". DASH NO. "B" IS IDENTICAL TO "A" EXCEPT FOR CHEM-MILL THICKNESS .012 $^{+.002}_{-.002}$ WAS .015 ±.002, LTA-3 (13) REQM'TS. N/A AND QUANTITY SAME AS -11.

	DWG NO	CHG NO.	TITLE	DASH NO. "A"	DASH NO. "B"
✓	LDW280-18368 ✓	A1	SEE DWG	-11	-13
✓	↑ -18378 ✓	A1	↑	-11	-13
✓	-18379 ✓	A1		-11	-13
✓	↓ -18381 ✓	A1	↓	-11	-13
✓	LDW280-18382 ✓	A1	SEE DWG	-11	-13

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 LCD 2220 CCA 586	3

REASON FOR EO: REDESIGN FOR ALSEP

DESCRIPTION OF EO: REMOVED AND REPLACED -"A" WITH -"B" ADDED LTA-3 (13) REQM'TS.

GAEC EO RELEASE: JK 10/17/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
LM	LM-4 (34) THRU LM-15 (45)		
LM	DESIGN VERIFICATION TEST (70)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE								
✓			✓	10/13/67			10-13-67	10/14/67		10/14/67	10/17/67
				B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 756

CDR 10-20-67
ISSUED BY MARZELLA A.F. MARZELLA SECTION VEHICLE DESIGN & INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

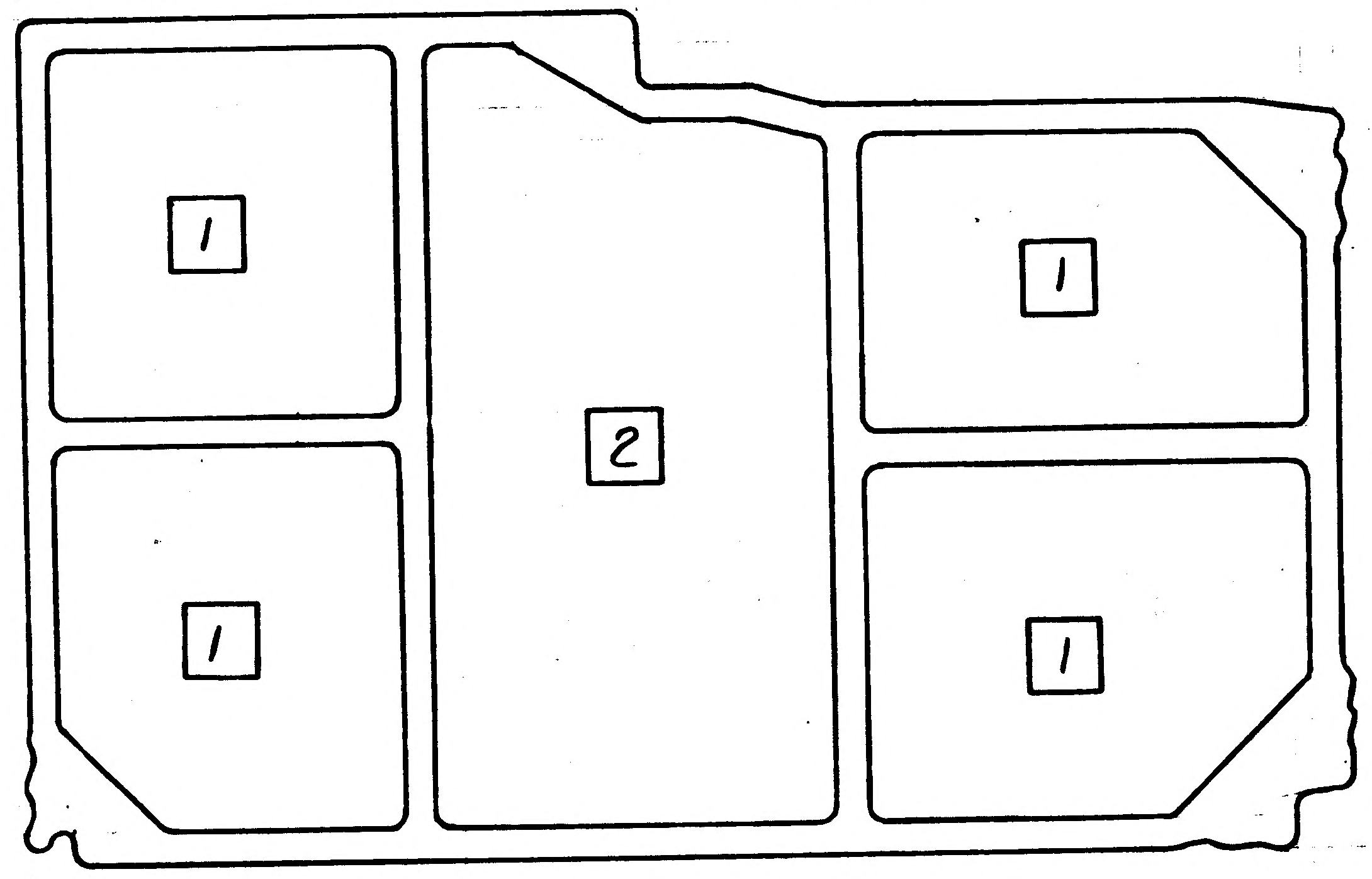
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18382 | EO NO. A2
CONTROL INFO NO. LDW280A9989

ADD -15, REMOVE -13
(-15 SAME AS -13 EXCEPT AS NOTED)
REVISE NOTES 2 & 3 TO REFLECT -15 WEB

LDW280-18382-15	
SYM	THICKNESS AFTER CHEM-MILLING
1	.015 ± .002
2	.012 +.003 −.002



DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 1433, CCA 586, LCD 2220 CL II (5

REASON FOR EO: REDESIGN FOR ALSEP

DESCRIPTION OF EO: ADDED -15, REMOVED -13

GAEC EO RELEASE: JK 10/31/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-3 (13)	LM-4 (34)	THRU
		LM-15 (45)	& DVT (70)

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP -13 ✓

APPROVED BY									
DATE	10/24/67			10/21/67	10/24/67		10/17	10-30-67
D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: WEB ~ DESCENT STAGE ~ SCIENTIFIC EQUIP. ~ LH END CLOSURE

DRAWING NO. LDW280-18382 | EO NO. A2

11/2
ISSUED BY R. GORTLER / J STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LE0280	EO NO.	963
CONTROL INFO NO.	LDW280B3378		

FOR THE FOLLOWING PARTS ADD TM-5/R$^{(65)}$ REQUIREMENTS, N/A LDW280-23579 FOR QUANTITIES NOTED.

DWG. NO. *	TITLE	REQD/MAD	CHG. NO.
	SEE DWG.		
LDW280 M17729-11		1	A5
-17885-23 -17885-25 -17885-27		1 1 2	B8
M17822-11		1	A1
-17886-27-1 -17886-21 -17886-23 -17886-25		1 1 1 1	C7
-17973-11 -17973-15		1 1	A5
-18524-11 -18524-13 -18524-15 -18524-17		1 1 1 1	A1
-18382-15		1	A3
LDW280-18478-11	SEE DWG.	1	A2

LEO 951

01
NAS 9-1100

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3075 CCA 586 PKG 2K

REASON FOR EO: ADD TM-5/R$^{(65)}$ REQUIREMENTS

DESCRIPTION OF EO: ON-*ADDED TM-5/R$^{(65)}$ REQUIREMENTS

GAEC C EO RELEASE: (5) K 5/22/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQD	

APPROVED BY							
DATE	4/13/68			5-13-68	5/17/68		5/13/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWING	LE0280	963

5-17-68
ISSUED BY E. RANSOM / G. HANSMANN X3352 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1372
CONTROL INFO NO. LDW280B7430

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-13369	✓	A5	SEE DWG
-18370	✓	A4	
-18372	✓	A4	
-18374	✓	A4	
-18375	✓	A4	
-18378	✓	A4	
-18379	✓	A6	
-18380	✓	A3	
-18381	✓	A5	
LDW280 -18382	✓	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: VK 4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/18/69			4-2-69	4/8/69		4/9/69	4/21/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1372

ISSUED BY 052869 MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1562
CONTROL INFO NO. LDW 280B 8114

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18381	SEE DWG	A6
✓ 382		A5
386		A4
387		A5
388		A5
389		B1
390		A5
391		A4
392		A4
LDW280-18401	SEE DWG	A5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: (E) 8-13-69; JK 8/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)
APPROVED BY: [illegible]
DATE: 7-29-69
VDI | SUPPORT | RELIAB. GROUP | GROUP LEADER 7/29/69 | STRESS GROUP N 8/1/69 | LIAISON ENGRG | PROJ ENGRG 7/2/69 | Bauman 8/15/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1562

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~[illegible]~~ APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00				✓		E.O. A1 LCD 2020	E.O. A1 - INITIAL DWG. RELEASE PARTS MADE PER E.O.	LM-1(31)	NOT	REQ'D	B. KARPEL 8-28-67		

CHG. APP. LTR.	GR. LEADER	VEH. DES. INT.	STRUCT.	STRUCT.	WEIGHTS	RELIABILITY
A		JKS 9/1/67	9/6/67			

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	DRAWING NO.	REV
B	26512	LDW280-18383	A

SCALE NONE

SHEET 1.10

ENG 77.3 5-66

01

NAS 9-1100

LDW280-18383 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LM	LDW280-25541	LM-1(31)	1 EA.
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18383-11,-13,-15,-17		GAEC SCH NO. 50-3	

WORK PACKAGE FUNCTION #111 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) MP-16A 9/8/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2020

CONTRACT NO. NAS 9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY	B. KARPEL 8/28/67
LAYOUT BY	ROESSLER
CHECKED BY	8-31-67
~~GP. LEADER~~	
VEH. DES. INT.	9/6/67
STRUCT.	9/6/67
STRUCT.	Alderman 9/6/67
WEIGHTS	
RELIABILITY	
PROJ ENGR	9/7
REL GROUP	9/7/67

Ⓑ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE - LOWER DECK
REINFORCEMENT

SIZE B

CODE IDENT NO. 26512

LDW280-18383 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18383 -17	E	WEB	AL. ALLOY SH.	QQ-A250/12	7075-T6	.080x15x20	NONE	88	
		-15		WEB				.080x14x21			
		-13		WEB				.071x16x16			
		LDW280-18383-11	E	WEB	AL. ALLOY SH.	QQ-A-250/12	7075-T6	.071x16x16	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18383	A

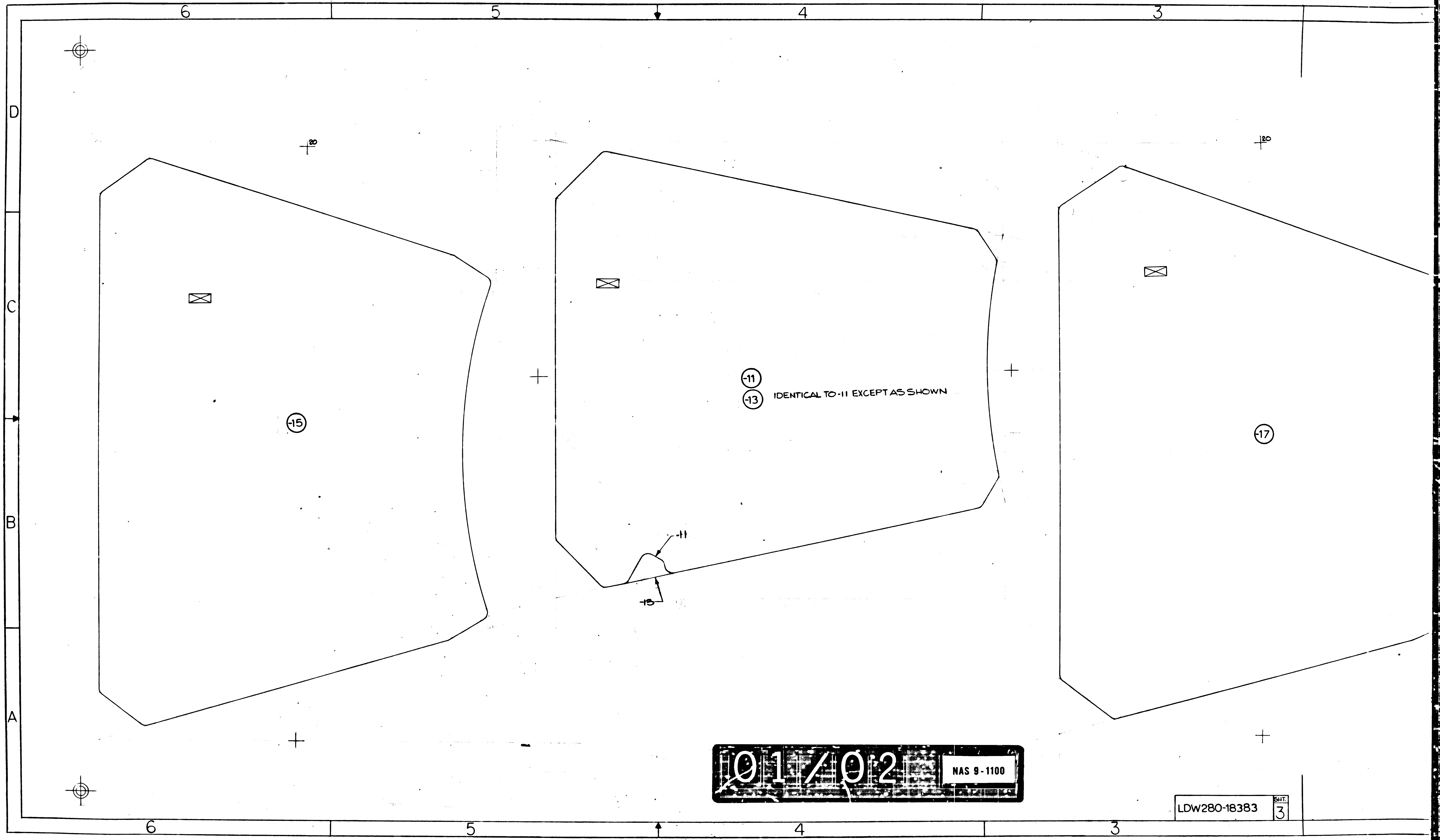
SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

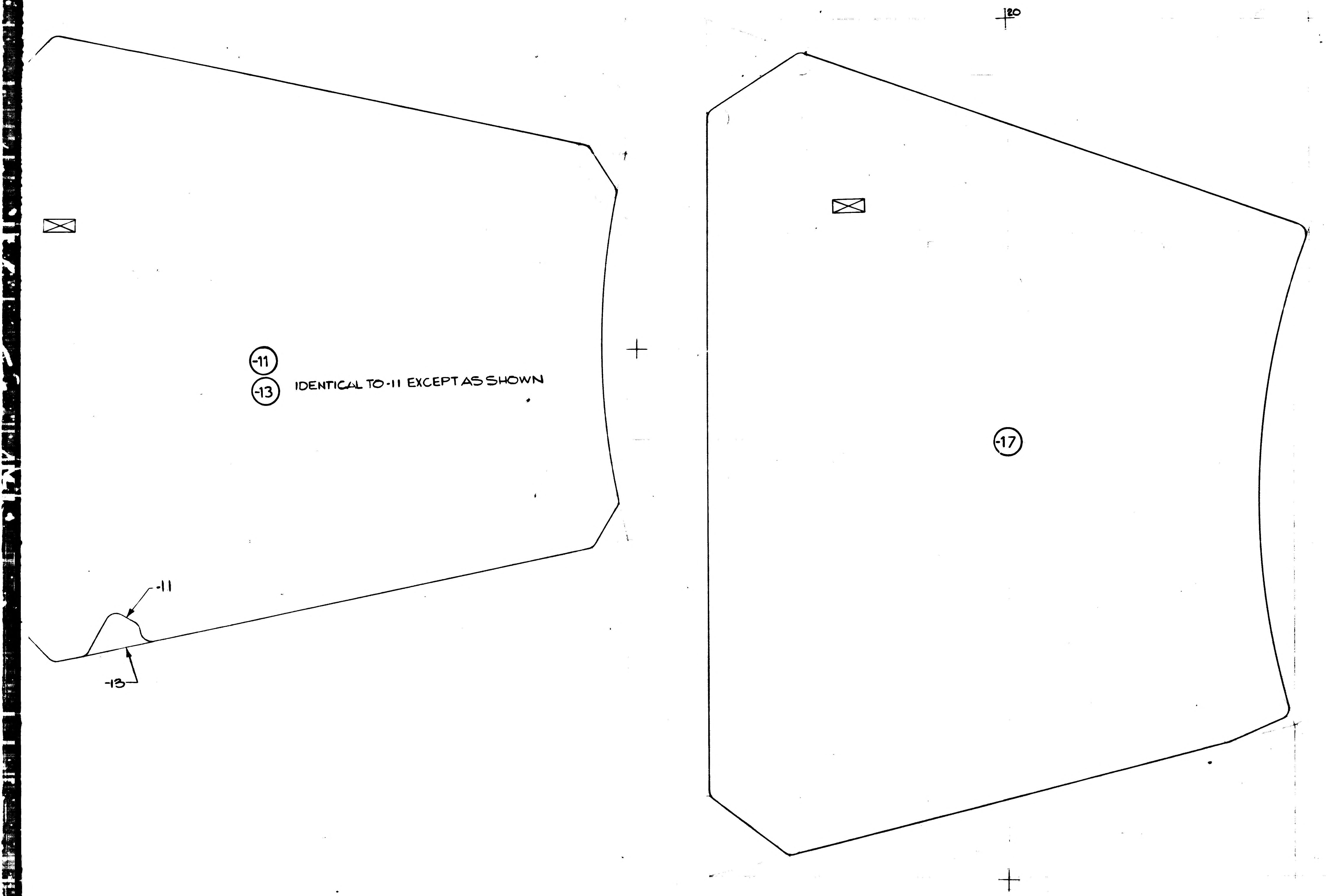
NAS 9-1100

LDW280-18383 SH3


6
5
4
3
D
C
B
A
20
20
-15
-11
-13
-17
-11
-13
01/02
NAS 9-1100
LDW280-18383
SHT.
3

IDENTICAL TO -11 EXCEPT AS SHOWN

TRAM OK
9S 8-24-67



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS : ± 1/32	✓

DWG SIZE 28x66
PRINTING INFO ONLY
FULL SIZE SHEET AREA (30x66) = 13.75 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 3.43 SQ. FT.
PRINT TRIM LINE

LDW280-18383A

LDW280-18383A

02/02
NAS 9-1100

LDW280-18383 SHT. 3

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK
SIZE H
CODE IDENT NO. 26512
LDW280-18383 A
LM
MODEL OR END ITEM
SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCTION
K2
ENG 734 6-64
2 FRAMES

ENG 32.2 REV 3-65

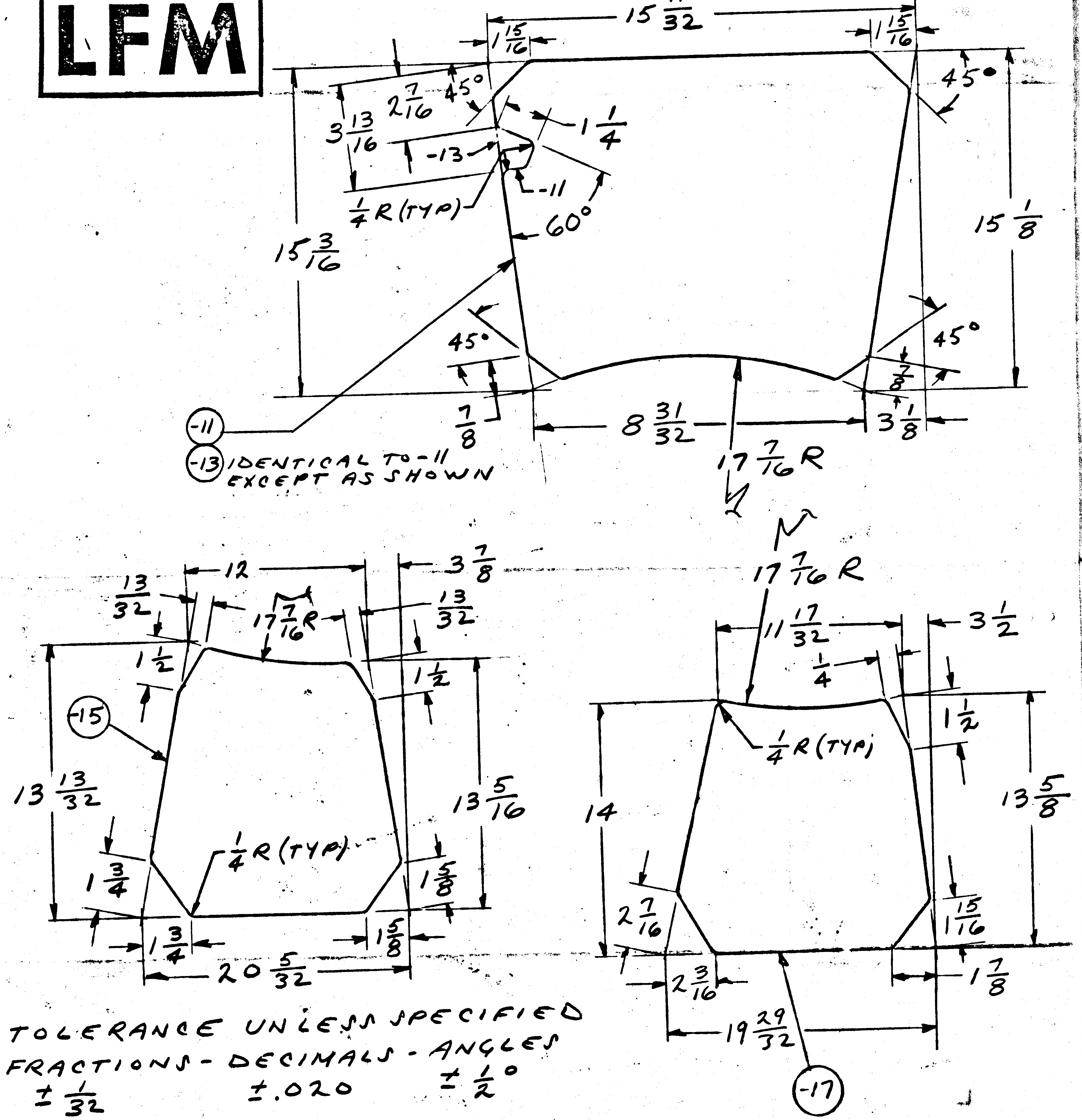
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-18383 | EO NO. A1
CONTROL INFO NO. LDW280A 8728

CREATE -11, -13, -15 & -17 WEB
N/A LDW 280-25541 EFF LM-1 (31)
-11, -13, -15, -17 1 EA REQD PER MOD

MATL: 7075-T6 AL ALY
QQ-A-250/12
FIN LSP 14.9030 I & T = E
.071 FOR -11 & -13
.080 FOR -15 & -17

LFM



15 11/32
1 15/16
1 15/16
45°
45°
3 13/16
2 7/16
1 1/4
-13
-11
1/4 R (TYP)
60°
15 3/16
15 1/8
45°
45°
7/8
8 31/32
3 1/8
7/8
17 7/16 R
-11
-13 IDENTICAL TO -11 EXCEPT AS SHOWN
12
3 7/8
13/32
13/32
17 7/16 R
1 1/2
1 1/2
-15
13 13/32
13 5/16
1/4 R (TYP)
1 3/4
1 5/8
1 3/4
1 5/8
20 5/32
17 7/16 R
11 17/32
3 1/2
1/4
1/4 R (TYP)
1 1/2
14
13 5/8
2 7/16
1 15/16
2 3/16
1 7/8
19 29/32
-17

TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

*NEW DWG-NO PARTS MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2020

REASON FOR EO: STIFFEN +Y LOWER DECK

DESCRIPTION OF EO: E.O. A1 INITIAL DWG RELEASE PARTS MADE PER E.O.

GAEC EO RELEASE: C JK 8/18/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM43	LM-1 (31)	

DRAWING CHANGE REQD: * REVISE DWG; RECORD EO
DISPOSITION OF PARTS: NOT REWORK; REQ SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	~~LIAISON~~ ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	VDI			—	NM	RLT FOR HRG PRJ KSC	E J	
DATE	8/17/67			—	8-17-67		8/17/67	8/18/67

PRIORITY: C
DRAWING TITLE: WEB - D.S., LOWER DECK REINFORCEMENT
DRAWING NO.: LDW280-18383
EO NO.: A1

ISSUED BY E. ROESSLER / J. STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00 & 3.00				✓		EO A1 LCD 2020	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO	LM-1 (31)	NOT	REQD	ROSARIO 8-23-67		

FOR CONTINUATION OF REVISIONS SEE SHEET ________

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18384	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-66

Q-1

NAS 9-1100

LDW280-18384 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25541	LM-1(31)	1 EA
PART NO. LDW280-18384-19 & -20		GAEC SCH NO. 50-3	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25541	LM-1(31)	2 EA
PART NO. LDW280-18384-11, -13, -15 & -17		GAEC SCH NO. 50-3	

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED
LAST DASH NO. USED -20

GRUMMAN REL INFO A
PRIM NO. 207 JK(001) MO-16A-9/8/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/64 ±.010 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD2020

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	ROSARIO 8/23/67	RELIABILITY	
LAYOUT BY	PALLMEYER		
CHECKED BY	8-30-67		
GR ~~LEADER~~	9/5/67		
STRUCT	9/6/67		
STRUCT	9/6/67	PROJ ENGR	
WEIGHTS		REL GROUP	

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE LOWER DECK
REINFORCEMENT ~ OUTBOARD

SIZE B | CODE IDENT NO. 26512 | LDW280-18384 | A Ⓐ
SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18384-20	E	ANGLE	AL ALY SH	QQ-A-250/12	7075-O	.063 x 2 x 13	T6	88	
		-19						.063 x 2 x 13			
		-17						.063 x 3 x 13			
		-15						.063 x 3 x 13			
		-13						.063 x 3 x 9			
		LDW280-18384-11	E	ANGLE	AL ALY SH	QQ-A-250/12	7075-O	.063 x 2 x 9	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18384	A

SCALE NONE

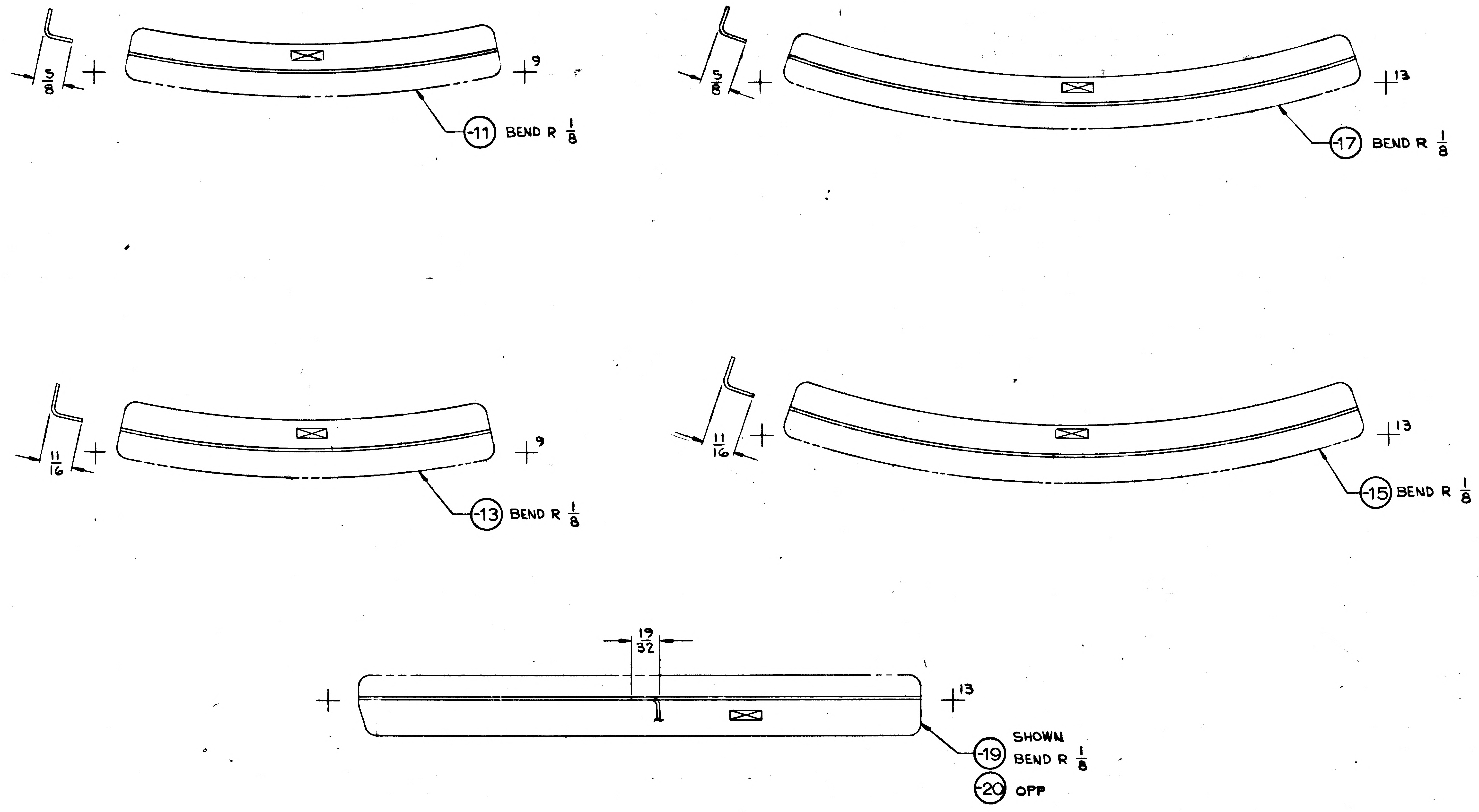
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

TRAM OK
7S 8-21-67



MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	F	26512	LDW280-18384	A

SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18384 A

01
NAS 9-1100

LFM

ENG 32.2 REV 3-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

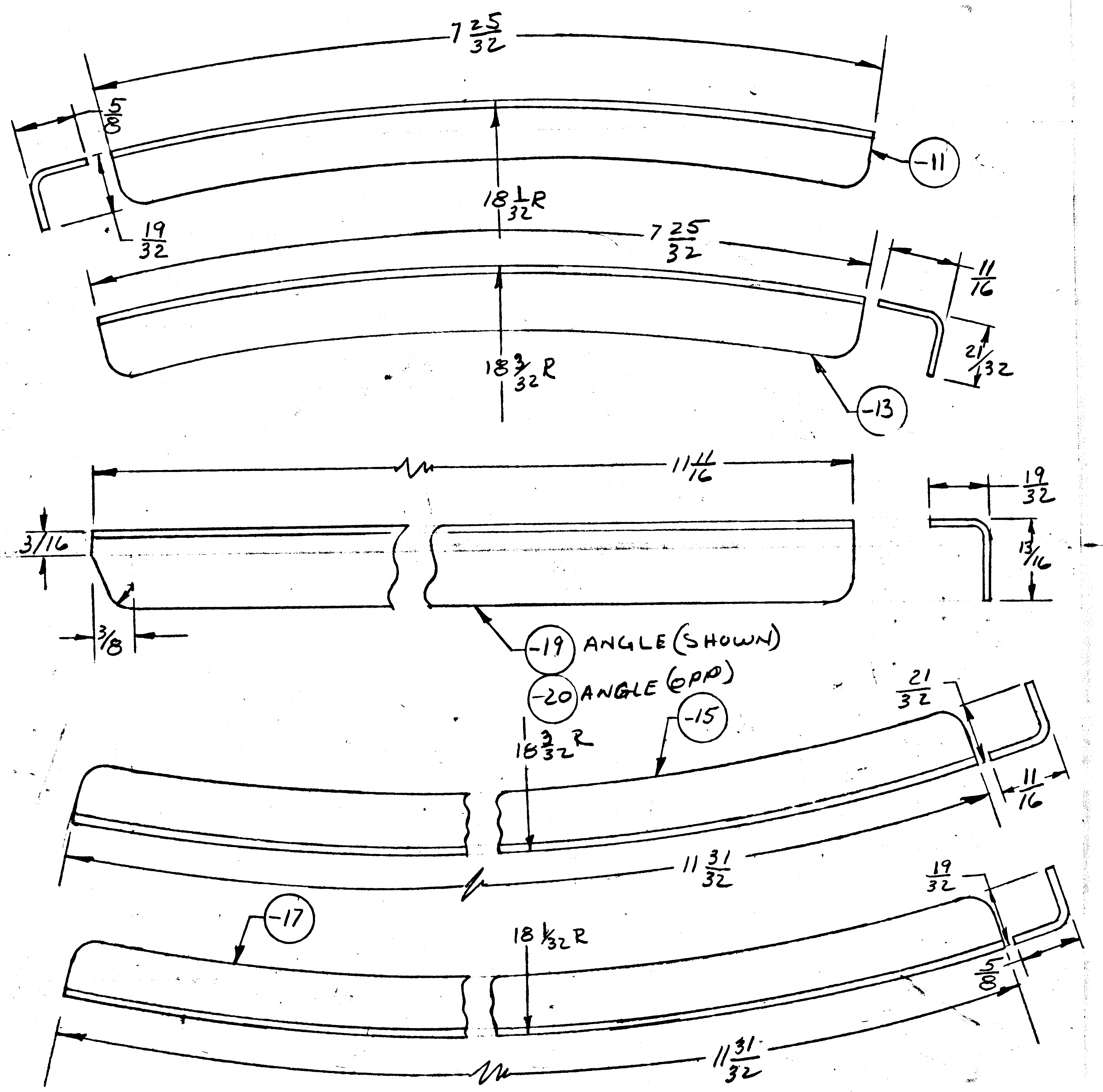
DWG. NO. DW280-18384
EO NO. A1
CONTROL INFO NO. LDW280A 8729

CREATE -11, -13, -15, -17-19&-20 ANGLE MTL: 7075-0 AL ALY
.063 QQ-A-250/12 HT-T-6 (FIN 88 (LSP 14-9030)
I&T=E BEND R 1/8
CORNER RADIUS 1/4 TYP
DWG TOL ±1/64, ±.010, ±1/2°

N/A LDW280-25541 EFF LM-1(31)

-11, -13, -15&17 2 REQD PER MOD

-19&-20 1 EACH REQD PER MOD



7 25/32
5/8
18 1/32 R
-11
19/32
7 25/32
18 3/32 R
11/16
21/32
-13
11 11/16
3/16
3/8
19/32
13/16
-19 ANGLE (SHOWN)
-20 ANGLE (OPP)
-15
18 3/32 R
21/32
11/16
11 31/32
-17
18 1/32 R
19/32
5/8
11 31/32

*= NEW DWG - NO PARTS MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑

LCD 2020

REASON FOR EO: STIFFEN +Y LOWER DECK

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

GAEC EO RELEASE

MODEL	~~PROCURING~~ ACTIVITY NO. E.I.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 43	LM-1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
*		NOT	REQ

APPROVED BY				JHS	WPB NM	RLJ FOR HRG PROJ KSC		Botts
DATE	8/16/67			8/16/67	8/16/67		8/16/67	8-17-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: ANGLE D.S LOWER DECK REINFORCEMENT OUT BOARD

DRAWING NO. LDW280-18384

EO NO. A1

8/18 ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18385A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM (LFM43)	LDW280-25541	LM-1(31)	4
PART NO. LDW 280-18385-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM (LFM43)	LDW280-25541	LM-1(31)	1 EA
PART NO. LDW 280-18385-11, 12,-13,-14,-17 & -19		GAEC SCH NO. 50-3	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110

LINE ITEM

DOCUMENTATION TYPE II (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO A

PRIM NO. 207 LK(001) MP-16H

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS - DECIMALS - ANGLES

± 1/64 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2020

CONTRACT NO. NAS 9-1100

DRAWN BY	R.FEGER 8/31/67	RELIABILITY	
LAYOUT BY	E.ROESSLER		
CHECKED BY	J Kastzmar 9-5-67		
~~GR.LEADER~~			
VEH DES INT	Strobach 9/16/67		
STRUCTURES	WJH 9/18/67	PROJ ENGR	W.R. Bischoff 9/18
STRUCTURES	9/18	REL GROUP	9/18/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE LOWER
DECK~REINFORCEMENT-INBOARD

SIZE	CODE IDENT NO.		
B	26512	LDW280-18385	A

(A)

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18385-19	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.063 X 2 X 17	T6	88	
		LDW280-18385-17						.063 X 2 X 18			
		LDW280-18395-15						.063 X 2 X 12			
		LDW280-18385-14						.063 X 2 X 14			
		LDW280-18385-13						.063 X 2 X 14			
		LDW280-18385-12						.063 X 2 X 14			
		LDW280-18385-11	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.063 X 2 X 14	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18385	A

SCALE NONE

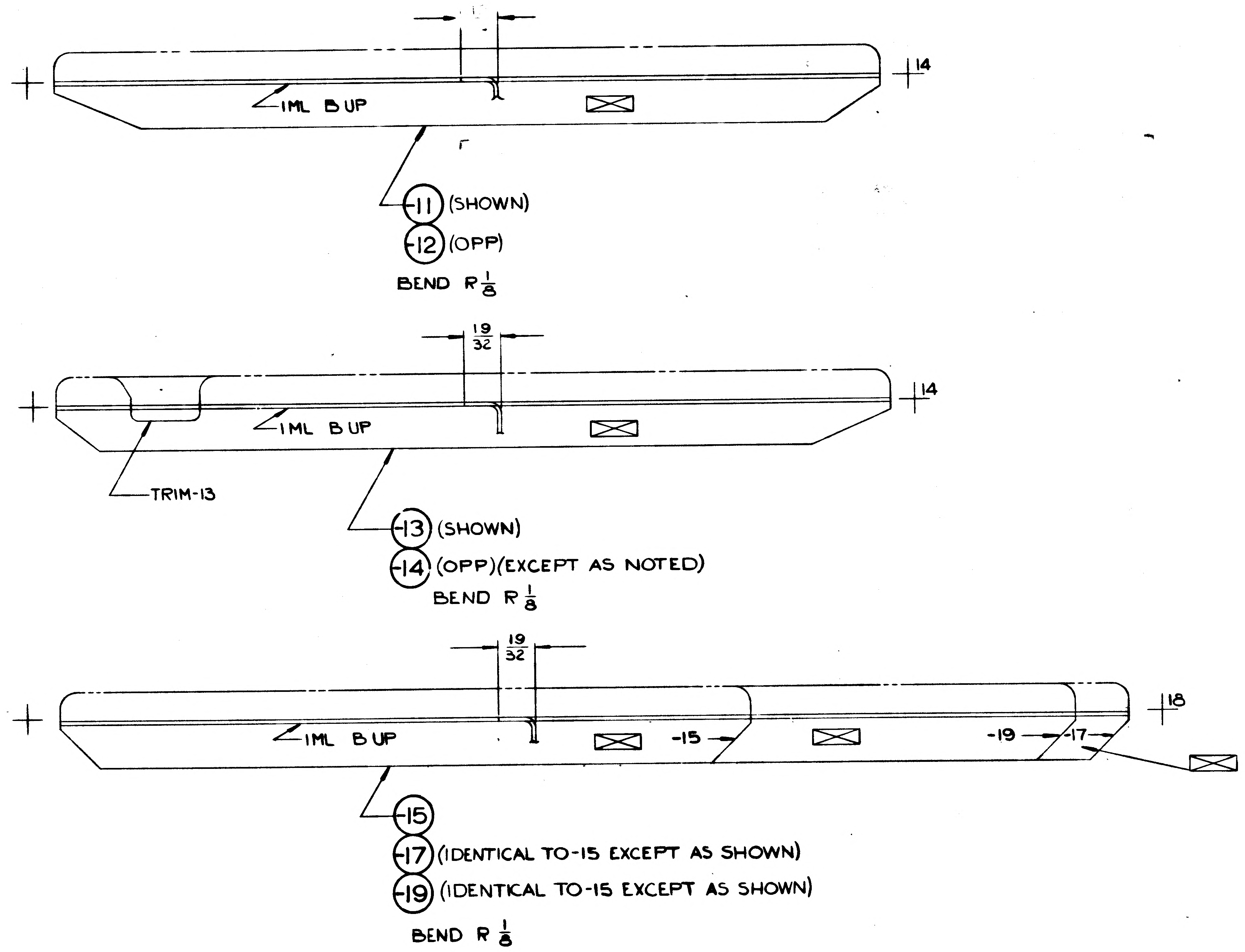
SHEET 2.00

Ⓐ

ENG 77.2 7-65

01

NAS 9-1100



14
IML BUP
-11 (SHOWN)
-12 (OPP)
BEND R 1/8
19/32
14
IML BUP
TRIM-13
-13 (SHOWN)
-14 (OPP)(EXCEPT AS NOTED)
BEND R 1/8
19/32
18
IML BUP
-15
-19
-17
-15
-17 (IDENTICAL TO -15 EXCEPT AS SHOWN)
-19 (IDENTICAL TO -15 EXCEPT AS SHOWN)
BEND R 1/8

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-18385	A
	SCALE FULL		SHEET 3.00	

LDW280-18385 A

FOR PHOTO REPRODUCTION

101

NAS 9-1100

ENO 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

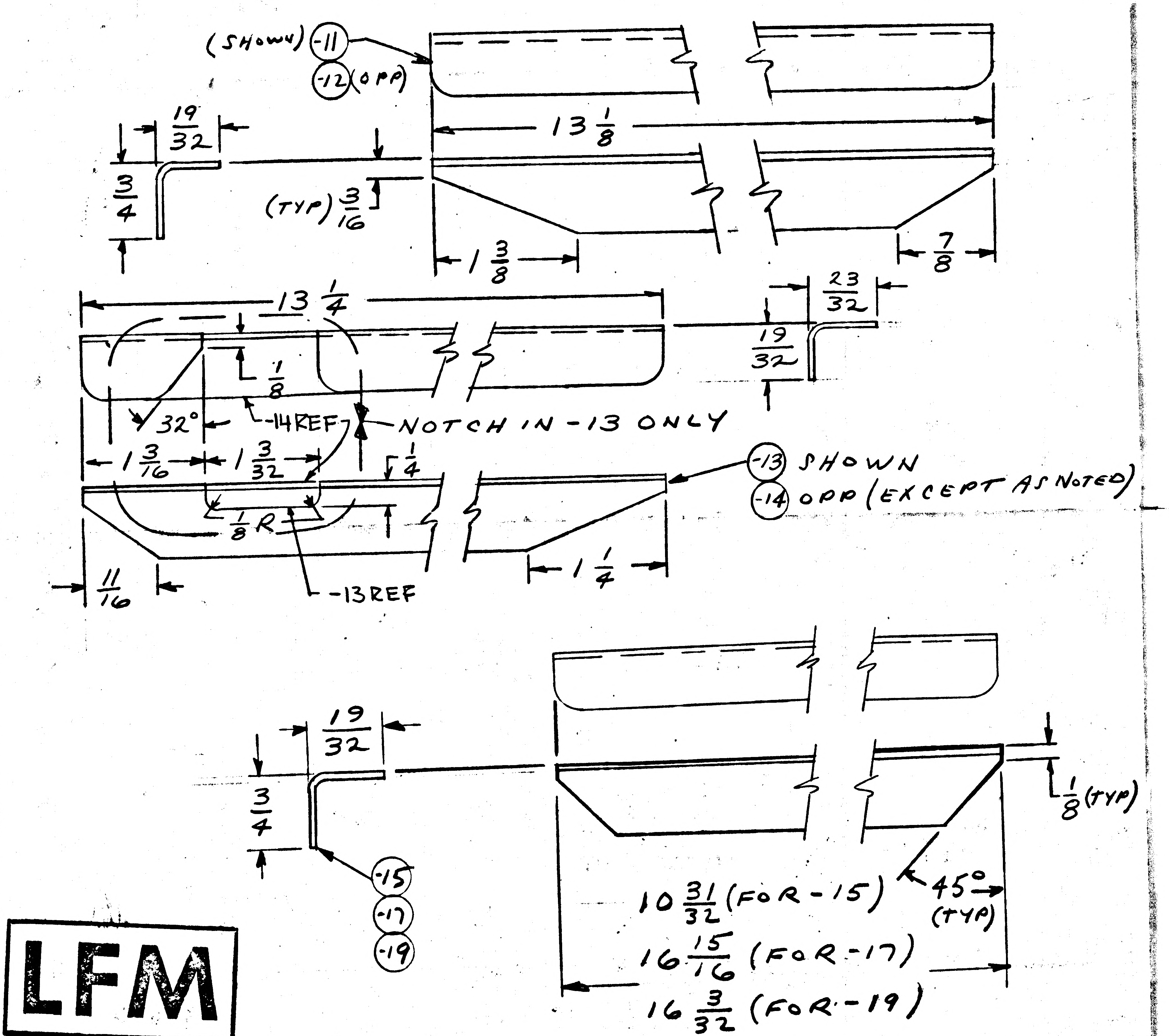
DWG. NO. LDW280-18385		EO NO. A1	
CONTROL INFO NO. LDW280A8730			

CREATE -11,-12,-13,-14,-15,-17 ¢-19 ANGLE
N/A LDW280-25541 EFF LM-1 (31)

-11,-12,-13,-14,-17 ¢-19 1EA REQD PER MOD

-15, 4 REQD PER MOD

MATL: 7075-0 AL ALY
.063 QQ-A-250/12 HT-T6
FIN LSP14-9030 I ¢ T = E
BEND R 1/8 CORNER R 1/4 TYP
DWG. TOL ±1/64, ±.010, ±0°30'


(SHOWN) -11
-12 (OPP)
19/32
3/4
13 1/8
(TYP) 3/16
1 3/8
7/8
13 1/4
23/32
19/32
1/8
32°
-14 REF
NOTCH IN -13 ONLY
1 3/16
1 3/32
1/4
1/8 R
-13 SHOWN
-14 OPP (EXCEPT AS NOTED)
11/16
-13 REF
1 1/4
19/32
3/4
1/8 (TYP)
-15
-17
-19
10 31/32 (FOR -15)
45° (TYP)
16 15/16 (FOR -17)
16 3/32 (FOR -19)

LFM

01 NAS 9-1100

* = NEW DWG - NO PARTS MADE ✓

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCO 2020	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
STIFFEN +Y LOWER DECK	E.O. A1 INITIAL DWG RELEASE PARTS MADE PER E.O.	JK 8/18/7

MODEL	EFFECTIVITY: ~~PRODUCTION~~ ET	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
LM	LFM43	LM-1 (31)		*		NOT	REQ	8/16/67	VDI			—	NM 8/16/67	PLT for HRG	E. 8/18/67	8/18/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE D.S. LOWER DECK REINFORCEMENT INBOARD	LDW280-18385	A1

8/18 ISSUED BY E. ROESSLER / J. STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 125

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18386-19	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.040X2X8	T6	88	
		-17						.040X2X8			
		-16						.032X2X7			
		-15						.032X2X7			
		-13						.045X2X16			
		LDW280-18386-11	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.045X2X13	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18386

SCALE NONE

SHEET 2.00

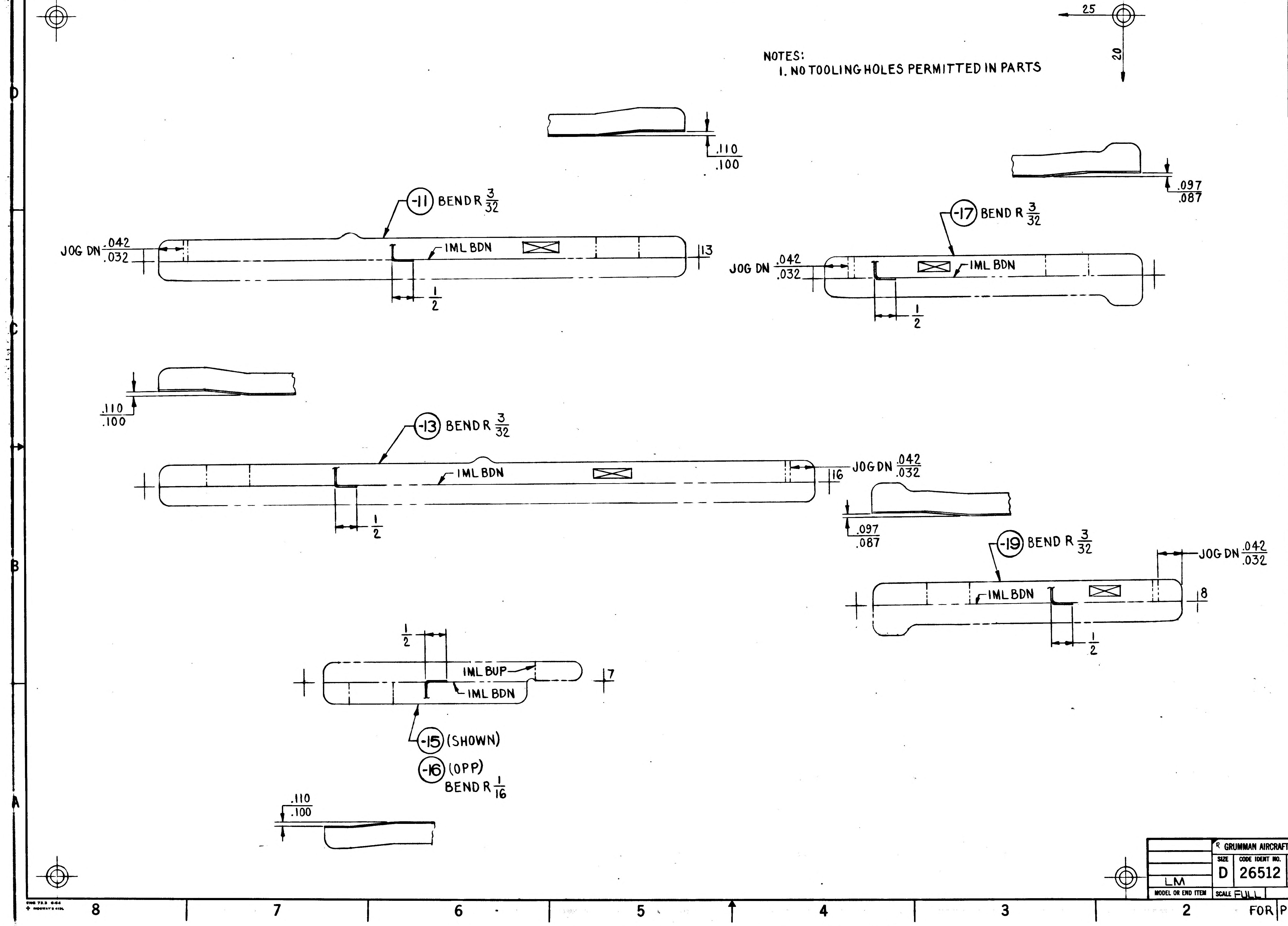
ENG 77.2 7-66

01

NAS 9-1100

TRAM OK
P.S. 9/16/67

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS


25
20
.110
.100
.097
.087
-11 BEND R 3/32
JOG DN .042/.032
IML BDN
13
1/2
-17 BEND R 3/32
JOG DN .042/.032
IML BDN
1/2
.110
.100
-13 BEND R 3/32
IML BDN
JOG DN .042/.032
16
1/2
.097
.087
-19 BEND R 3/32
JOG DN .042/.032
IML BDN
8
1/2
1/2
IML BUP
IML BDN
7
-15 (SHOWN)
-16 (OPP)
BEND R 1/16
.110
.100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18386
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

Q1

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 782
CONTROL INFO NO. LDW280A9816

ADD LTA-3(13) EFFECTIVITY TO DASH NO. * OF THE FOLLOWING DWGS.:
QUANTITY SAME AS LM-4 (34) THRU LM-15 (45)

DWG. NO.	DASH NO. *	N/A	TITLE	CHG. NO.
LDW280-18372	-11,-12,-13,-14,-15,-17,-19	LDW280-54575	SEE DWG.	A1
-18373	-11,-13,-15,-17,-19,-21	-54575		A1
-18386	-11,-13,-15,-16,-17,-19	-54576		A1
-18387	-11,-13,-15,-17,-19,-21	-54576		A1
M17775	-11	-54625		A1
M17778	-11,-13,-15,-17,-19,-21	-54625		A1
M17762	-1	-54625		A1
M17784	-11,-12	-54576		A1
-18388	-11,-13,-14,-15,-16	-54576		A1
-18389	-11,-13,-15,-16	-54576		A1
-18390	-11,-13,-15,-17,-19	-54576		A1
-18351	-1	-54625		A1
LDW280-54593	-1	LDW280-54509	SEE DWG	A1
LDW 280-18411	-13,-15	LDW280-54625	SEE DWG	A3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD1433 OK. CCA586	(5)

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3(13) EFFECTIVITY TO DASH NO. *

GAEC EO RELEASE: C JK 11/1/67

MODEL	PROCURING ~~ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		
LM			

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY		JaP							
DATE		10/23/67			10/2/67	10/23/67		10/2/67	11-3-67
	D								

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 782

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1371
CONTROL INFO NO. LDW280B 7431

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18386 ✓	A3	SEE DWG
-18387	A4	
-18388	A4	
-18389	A6	
-18390	A4	
-18391	A3	
-18392	A3	
-18398	A3	
-18401	A4	
LDW280-18402	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		LCD3587 PKG 54 PG 7 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: K 4/23/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/21/69

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO.: 1371

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO280		EO NO. 1638
CONTROL INFO NO. LDW280B 8434		

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/ LDW 280 - 17711	SEE DRAWING	LDW280-54576	D3
/ -17792		-54576	C3
/ -18340		-54576	A7
/ -18342		-54576	A6
/ -18343		-54576	A5
/ -18344		-54576	A6
/ -18380		-54576	A5
/ -18386		-54576	A5
-17623		-23578 -54576	C5
-18387		-54576	A6
-18478 ✓		54576 23579	A5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 70 PG 1, 2, (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8/21/69; JK 8/28/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY		
LM		LTA 3DR/1	(460)

DRAWING CHANGE REQD		DISPOSITION OF PARTS			
REVISE DWG ✓	RECORD EO	REWORK NOT REQ'D	SCRAP		

APPROVED BY							
DATE	8-8-69			8/11/69	8/12/69		8/12/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO280	1638

8-25-69
ISSUED BY A FURIO X 26046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18387

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	DVT (70)	3
		LM-15(45)	3
		LM-14(44)	3
		LM-13(43)	3
		LM-12(42)	3
		LM-11(41)	3
		LM-10(40)	3
		LM-9(39)	3
		LM-8(38)	3
		LM-7(37)	3
		LM-6(36)	3
		LM-5(35)	3
LM	LDW280-54576	LM-4(34)	3
PART NO. LDW280-18387-11		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	DVT (70)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54576	LM-4(34)	1 EA
PART NO. LDW280-18387-13,-15-17,-19 & -21		GAEC SCH NO. 51-2	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-21	PRIM NO. 207	(001)	9/29/7 ok

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

P ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 1433, CCA 586	

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J. BIANCHINO	RELIABILITY	
LAYOUT BY	F. MARZELLA 9/15/67		
CHECKED BY	9.16.67		
GP LEADER	9/19/67		
VEH DES INT	9/19/67		
STRUCTURES	M.S. 9/20	PROJ ENGR	9/20
STRUCTURES	9/28	REL GROUP	9/28/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE-SCIENTIFIC EQUIPMENT BAY
LOWER DECK-OUTBOARD

SIZE	CODE IDENT NO.	
B	26512	LDW280-18387
SCALE	NONE	SHEET 1.00 OF 3

CDR 10-6-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18387-21	E	ZEE	AL. ALLOY SH	QQ-A-250/12	7075	.032 x 3 x 24	T6	88	
		-19		CHANNEL			7075	.032 x 3 x 24	T6		
		-17		CHANNEL			7075	.032 x 3 x 24	T6		
		-15		PLATE			7075-T6	.040 x 1 x 3	NONE		
		-13		CLIP			7075	.040 x 1 x 3	T6		
		LDW280-18387-11	E	PLATE	AL. ALLOY SH	QQ-A-250/12	7075-T6	.040 x 1 x 3	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18387

SCALE NONE

SHEET 2.00

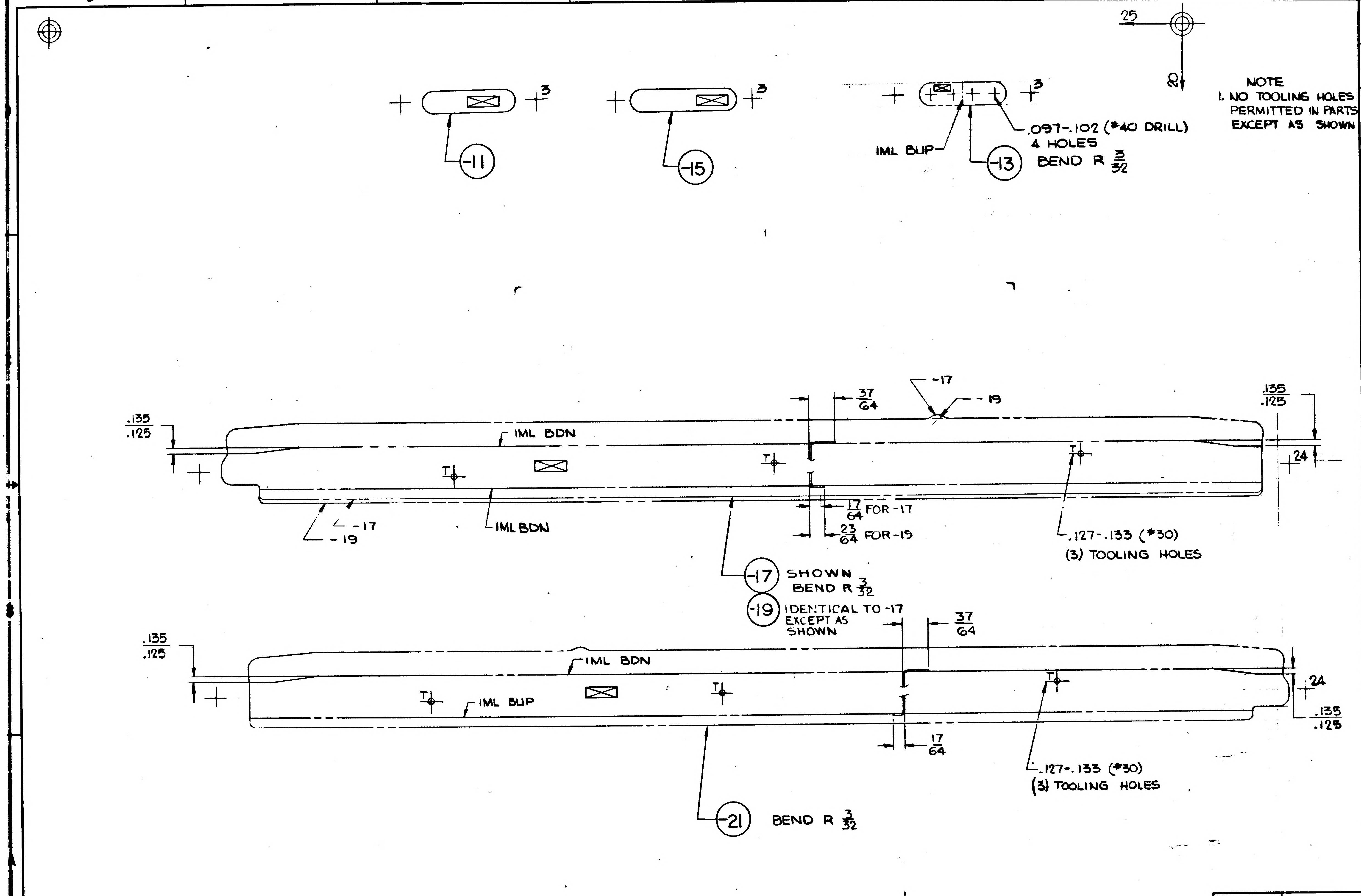
⊖

ENG 77.2 7-65

01

NAS 9-1100

TRAM OK
QS. 9/15/67


25
-11
-15
+3
IML BUP
-13
.097-.102 (#40 DRILL)
4 HOLES
BEND R 3/32
.135
.125
IML BDN
-17
-19
37/64
24
17/64 FOR -17
23/64 FOR -19
IML BDN
.127-.133 (#30)
(3) TOOLING HOLES
-17 SHOWN
BEND R 3/32
-19 IDENTICAL TO -17
EXCEPT AS
SHOWN
IML BUP
17/64
-21 BEND R 3/32

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS EXCEPT AS SHOWN

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED 16	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18387

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	D	26512	LDW280-18387
	SCALE FULL		SHEET 3.00

2 FOR PHOTO REPRODUCTION 1 K2

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 943
CONTROL INFO NO. LDW280B3241	

FOR THE FOLLOWING PART NO'S. ADD TM-5/R(65) REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9
-17623-19		2	
-18512-11		4	B1
-17711-25		1	C9
-17711-27		1	
-17792-21		1	B9
-17792-23		1	
-18340-15		1	·A4
-18342-11		1	A3
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13		1	·A1
LDW280-18478-15	SEE DWG.	1	

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NAS 9-1100

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 CCA 586 PKG 2G (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC EO RELEASE: C 5/16

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY								
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5/16/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280		EO NO. 1371
CONTROL INFO NO. LDW280B 1431		

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18386 ✓	A3	SEE DWG
-18387 ✓	A4	
-18388	A4	
-18389	A6	
-18390	A4	
-18391	A3	
-18392	A3	
-18398	A3	
-18401	A4	
LDW280-18402	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☐	LCD3587 PKG54 PG 7 CCA1821 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LM-15(45) NO LONGER REQD	DELETED LM-15 (45) EFF FROM -*	K 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/21/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1371

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1562
CONTROL INFO NO. LDW280B 8114

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 ~~(40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
✓ LDW280-18381	SEE DWG	A6	
✓ 382		A5	
✓ 386		A4	
✓ 387		A5	
388		A5	
389		B1	
390		A5	
391		A4	
392		A4	
LDW280-18401	SEE DWG	A5	

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 3890 PKG 99 PG 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (123) REQMTS

GAEC EO RELEASE: (E) WB 8-13-69; JK 8/13/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS
LM		LTA-11 ([redacted]) (23)		REVISE DWG ✓ / RECORD EO	NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	RET				N			Bauman
DATE	7-29-69			7/29/69	8/2/69		8/7/69	8/15/69

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO. LEO 280 | EO NO. 1562

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 -65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18387
EO NO. A7
CONTROL INFO NO. LDW280B9089

RESTRICT -17,-19,-21, TO LM-4(34) THRU LM-9(39) & DVT(70), LTA-3(13) TM-5/R(65). WAS LM-4(34) THRU LM-14(44) & LTA-11(23), LTA-3DR/1(460), DVT(70), LTA-3(13), TM-5/R(65).

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3994 PKG68

⑤

REASON FOR EO: NON-BUCKLING DIAGONAL INSTL/SEQ BAY/QD.II

DESCRIPTION OF EO: RESTRICTED -17,-19-21 EFF. BY REMOVING LM-10(40) THRU LM-14(44), LTA-11(23), LTA-3DR/1(460).

GAEC EO RELEASE: LR 10-9-69
HF 10/13/69

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	LM-14(44)
LM		LTA 11(23)	LTA 3DR\1(460)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	10/8/69			10-7-69	10/8/69		10/8/69	10/13/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: PLATE-D.S. SEQ BAY-LWR. DECK-OUTBD.
DRAWING NO.: LDW280-18387
EO NO.: A7

11/3/69
ISSUED BY R.OLECK/P.THORJUSEN X 87222 10/6/69 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18388

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	LM-15(45)	2 EA
	LDW280-54576	LM-14(44)	
	LDW280-54576	LM-13(43)	
	LDW280-54576	LM-12(42)	
	LDW280-54576	LM-11(41)	
	LDW280-54576	LM-10(40)	
	LDW280-54576	LM-9(39)	
	LDW280-54576	LM-8(38)	
	LDW280-54576	LM-7(37)	
	LDW280-54576	LM-6(36)	
	LDW280-54576	LM-5(35)	
	LDW280-54516	LM-4(34)	
LM	LDW280-54576	LM-3(33)	2 EA
PART NO. LDW280-18388-14 & -15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	LM-15(45)	1 EA
	LDW280-54576	LM-14(44)	
	LDW280-54576	LM-13(43)	
	LDW280-54576	LM-12(42)	
	LDW280-54576	LM-11(41)	
	LDW280-54576	LM-10(40)	
	LDW280-54576	LM-9(39)	
	LDW280-54576	LM-8(38)	
	LDW280-54576	LM-7(37)	
	LDW280-54576	LM-6(36)	
	LDW280-54576	LM-5(35)	
	LDW280-54576	LM-4(34)	
LM	LDW280-54576	DVT(70)	1 EA
PART NO. LDW280-18388-11; 13, & -16		GAEC SCH NO. 51-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO			
LAST DASH NO. USED	-16	PRIM NO. 207	JK(-01)		
			WP 16	10/2/7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

5 ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 (CCA 586)
OK

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	R. SVOBODA 9-21-67	RELIABILITY	
LAYOUT BY	E. RANSOM 9-27		
CHECKED BY	D. FASS 9-25-67		
GR LEADER	[illegible] 9/27/67		
VEH DES. INT	[illegible] 9/27/67		
STRUCTURES	M.S. 9/27/67	PROJ ENGR	[illegible] 9/27/67
STRUCTURES	[illegible] 9/29	REL GROUP	[illegible] 9/30/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE ~ SCIENTIFIC EQUIPMENT
BAY ~ MECHANISM SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18388	
SCALE	NONE	SHEET 1.00 OF 3	

CDR 10-1-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18388-16	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.040 × 2 × 3	T6	88	
		LDW280-18388-15	↕	ANGLE	↕	↕	↕	.040 × 2 × 3	↕	↕	
		LDW280-18388-14	↕	CLIP	↕	↕	↕	.040 × 2 × 3	↕	↕	
		LDW280-18388-13	↕	CLIP	↕	↕	↕	.040 × 2 × 3	↕	↕	
		LDW280-18388-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.050 × 3 × 5	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18388

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 782
CONTROL INFO NO. LDW280A9816

ADD LTA-3(13) EFFECTIVITY TO DASH NO. * OF THE FOLLOWING DWGS:
QUANTITY SAME AS LM-4(34) THRU LM-15 (45)

DWG. NO.	DASH NO. *	N/A	TITLE	CHG. NO.
LDW280-18372	-11,-12,-13,-14,-15,-17,-19	LDW280-54575	SEE DWG.	A1
-18373	-11,-13,-15,-17,-19,-21	-54575		A1
-18386	-11,-13,-15,-16,-17,-19	-54576		A1
-18387	-11,-13,-15,-17,-19,-21	-54576		A1
M17775	-11	-54625		A1
M17778	-11,-13,-15,-17,-19,-21	-54625		A1
M17762	-1	-54625		A1
M17784	-11,-12	-54576		A1
-18388	-11,-13,-14,-15,-16	-54576		A1
-18389	-11,-13,-15,-16	-54576		A1
-18390	-11,-13,-15,-17,-19	-54576		A1
-18351	-1	-54625		A1
LDW280-54593	-1	LDW280-54509	SEE DWG	A1
LDW 280-18411	-13,-15	LDW280-54625	SEE DWG	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD1433 OK. CCA586 (5)

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3(13) EFFECTIVITY TO DASH NO. *

GAEC EO RELEASE: C JK 11/1/7

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	D	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY	JaP								
DATE	10/23/67				10/20/67	10/23/67		10/20/67	10-3-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 782

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01 NAS 9-1100

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 943
CONTROL INFO NO. LDW280B3241

ENG 32.2 REV 3-65

FOR THE FOLLOWING PART NO'S. ADD TM-5/R(65) REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO.*	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9
-17623-19		2	
-18512-11		4	B1
-17711-25		1	C9
-17711-27		1	
-17792-21		1	B9
-17792-23		1	
-18340-15		1	·A4
-18342-11		1	A3
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO.*	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13		1	·A1
LDW280-18478-15	SEE DWG.	1	

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ LCD 3075 CCA 586 PKG 2G (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC EO RELEASE: 5/16/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY								
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5/16/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1634
CONTROL INFO NO. LDW280B 8435

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG. NO.
/ LDW280 - 18388	SEE DWG	LDW280 - 54576	A6
- 18389		- 54576	B2
- 18390		- 54576	A6
- 18391		- 54576	A5
- M 17745		- 54576	A7
- M 17742		- 54576	A7
- M 17770		- 54576	A7
- 18364		- 54576	A5
- 18392		- 54576	A5
- 18512		- 54576	B4
M17854		- 54576	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 2 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8-21-9; JK 8/21/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

APPROVED BY							
DATE	8-8-69			8/14/69	8/12/69		8/12/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1634

8-25-69
ISSUED BY A. FURIO X 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00,1.10		D		✓		LE0280-782 LCD 1433 CCA586	ADDED LTA-3 EFF TO -11, -13, -15 & -16 ADDED SH.1.10	LTA-3	NOT	REQD	F. ZUKAS 5-8-69		
	2	1.00 2.00 3.00				✓		EOA2 LCD1433 CCA586	IN FIELD OF DWG. FOR -11, RELOCATED #40 DRILL (5 PLACES). IN FIELD OF DWG, BIM & MOD. BLOCK REPLACED -13 WITH -17	LTA-3 DVT LM-4THRU LM-15		-13			
	3	3.00		G		✓		EOA3 LCD1433 CCA 586	ON -11, REV. CUTOUT, 1 3/4 WAS 3/4	LTA-3 DVT LM-4THRU LM-15	✓				
	4	1.00				✓		LE0280-943 LCD 3075 CCA-586	ON -11, -15, -16 & -17 ADDED TM-5/R	TM-5/R	NOT	REQD			
	5	3.00				✓		EOA5 LCD 1433 CCA586	REF EOA3: ON FIELD OF DWG, IML BDN (REF) WAS IML BUP (REF) & IML BUP (REF) WAS IML BDN (PEF)	LTA-3 DVT TM-5/R LM-4THRU LM-15	✓				
	6	1.00						LE0280-1371 LCD 3587 CCA1821 Ⓔ	DELETED LM-15 EFF FROM -11, -15, -16 & -17	LM-15		-11, -15 -16, 17	H.D.		

CHG APPROVED LTR	GROUP LDR	VDI	STRUCT	STRUCT
A	5-8-69	5/8/69		5/8/69

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18389	A
SCALE NONE		SHEET 1.10	

77.16 3-66

01

NAS 9-1100

LDW280-18389 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	TM-5/R(65)	1EA
		LTA-3 (13)	
		D.V.T. (70)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5(35)	
LM	LDW280-54576	LM-4(34)	1 EA
PART NO. LDW280-18389-11-15,16 & -17		GAEC SCH NO. 51-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-17	PRIM NO.	JK(001)
		207	ME-1A 5/15/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ± 1/2°
5 ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 (CCA 586)
OK

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A.LITVINOFF 9-27-67	RELIABILITY	
LAYOUT BY	F.MARZELLA 9-30-67		
CHECKED BY	D.FASS 9-30-67		
GR LEADER	9/30/67		
VEH DES INT	9/30/67		
STRUCTURES	N/H 10/2/67	PROJ ENGR	9/30
STRUCTURES	10/4	REL GROUP	
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT-STAGE-SCIENTIFIC EQUIPMENT
BAY LOWER DECK - OUTBOARD

SIZE	CODE IDENT NO.		
B	26512	LDW280-18389	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

CDR 10-1-67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18389-16	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.040×3×5	T 6	88	
		LDW280-18389-15	↑	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.040×3×5	T6	88	
		LDW280-18389-17	↓	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.040×5×6	T 6	88	
		LDW280-18389-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.040×4×18	T 6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T 6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18389	A

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

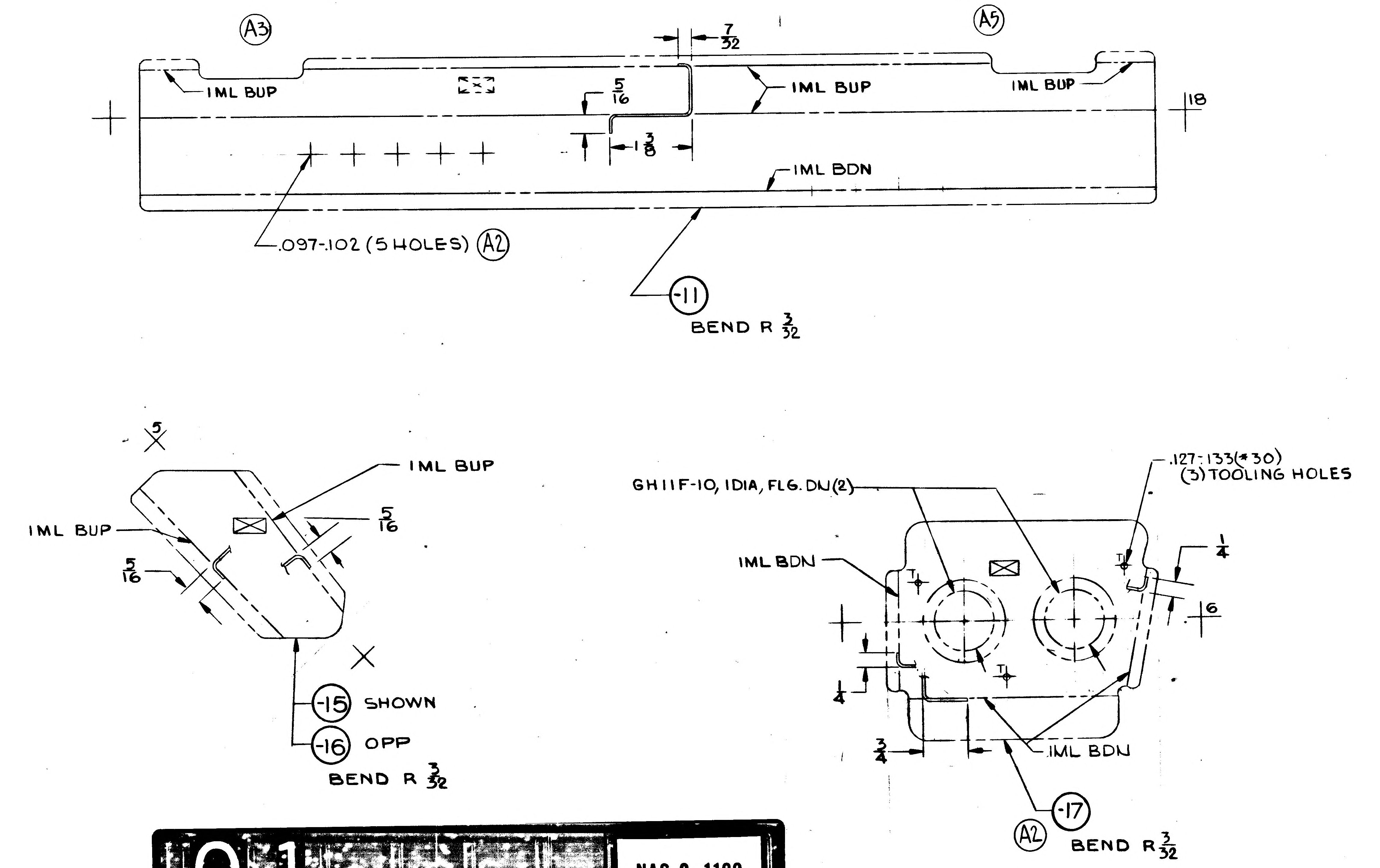
01

NAS 9-1100

4 LDW280-18389 A

TRAM OK
P.S. 9/22/67

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS. EXCEPT AS NOTED



A3
A5
7/32
5/16
IML BUP
IML BUP
IML BUP
.118
1 3/8
IML BDN
.097-.102 (5 HOLES) A2
-11
BEND R 3/32
5
IML BUP
IML BUP
5/16
5/16
-15 SHOWN
-16 OPP
BEND R 3/32
GH11F-10, 1 DIA, FLG. DN (2)
.127-.133 (#30)
(3) TOOLING HOLES
IML BDN
1/4
.16
1/4
3/4
IML BDN
-17
A2
BEND R 3/32

01

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

LDW280-18389 A

	R GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18389	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1

K2

ENG 73.3 6-64

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 782
CONTROL INFO NO. LDW280A9816

ADD LTA-3(13) EFFECTIVITY TO DASH NO.* OF THE FOLLOWING DWGS.:
QUANTITY SAME AS LM-4(34) THRU LM-15(45)

DWG. NO.	DASH NO.*	N/A	TITLE	CHG. NO.
LDW280-18372	-11,-12,-13,-14,-15,-17,-19	LDW280-54575	SEE DWG.	A1
-18373	-11,-13,-15,-17,-19,-21	-54575	↕	A1
-18386	-11,-13,-15,-16,-17,-19	-54576		A1
-18387	-11,-13,-15,-17,-19,-21	-54576		A1
M17775	-11	-54625		A1
M17778	-11,-13,-15,-17,-19,-21	-54625		A1
M17762	-1	-54625		A1
M17784	-11,-12	-54576		A1
-18388	-11,-13,-14,-15,-16	-54576		A1
-18389	-11,-13,-15,-16	-54576		A1
-18390	-11,-13,-15,-17,-19	-54576		A1
-18351	-1	-54625		A1
LDW280-54593	-1	LDW280-54509	SEE DWG	A1
LDW 280-18411	-13,-15	LDW280-54625	SEE DWG	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD1433 OK. CCA 586 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ALSEP REQUIREMENT	ADDED LTA-3(13) EFFECTIVITY TO DASH NO.*	C JK 11/1

MODEL	~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		
LM			

DRAWING CHANGE REQ'D: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	10/23/67			10/21/67	10/23/67		10/26/67	10-3-67
D	Y.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C
DRAWING TITLE NOTED
DRAWING NO. LE0280
EO NO. 782

10/27
ISSUED BY E. RANSOM X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

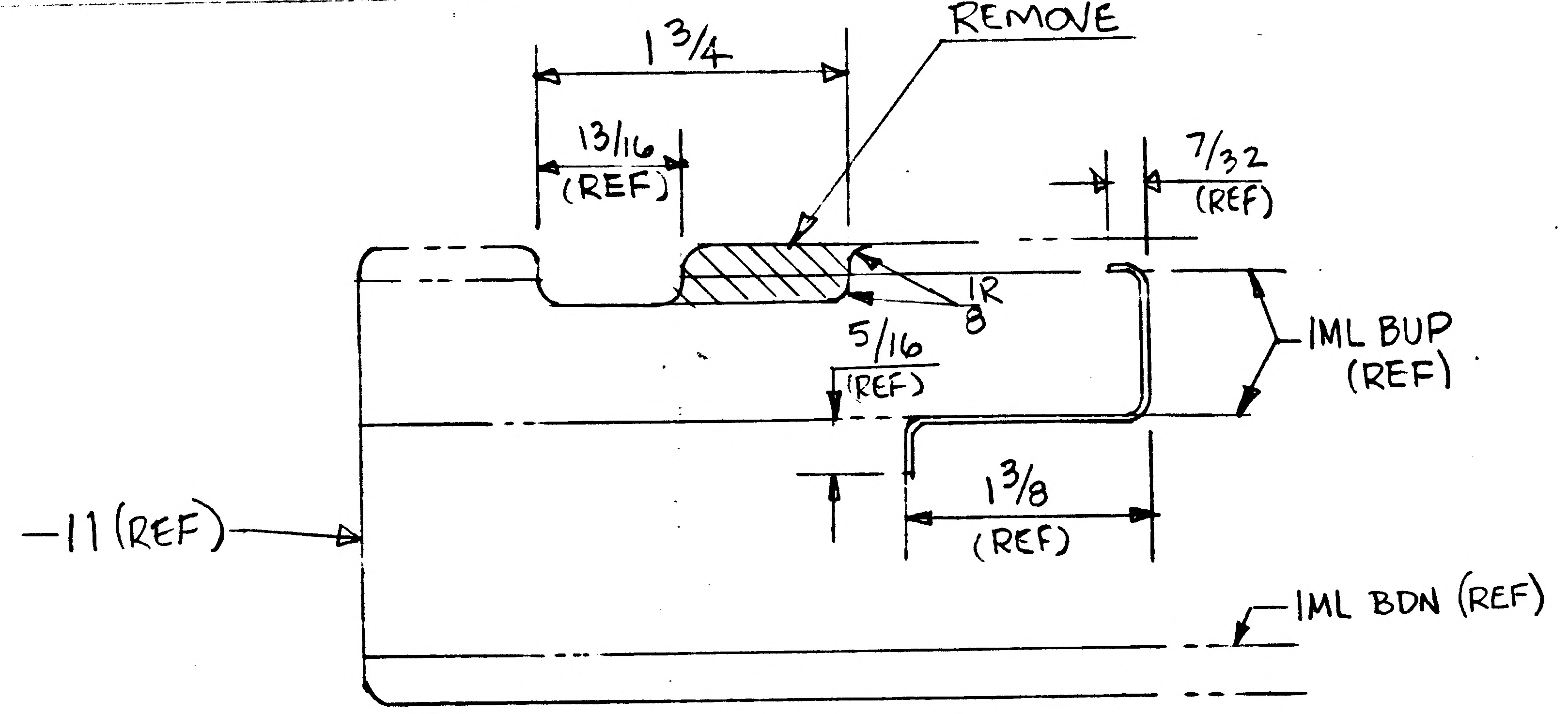
01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18389		EO NO. A3	
CONTROL INFO NO. LDW280 B 2897			

REWORK -11 FOR ALL EFF AS SHOWN



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 CCA 586 PKG # 14d (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INTERFERENCE WITH ALSEP PIN RELEASE MECHANISM	ON -11 REVISED CUTOUT 1 3/4 (WAS) 3/4	4/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	DVT (70)		
LM	LM-4 (34)	THRU LM-	15 (45)
LM	LTA-3 (13)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE				4-5-68	4/5/68		4/5/68	4-5-68
G	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S SEQ BAY LWR DECK - OUTBD	LDW280-18389	A3

4/10/68
ISSUED BY J. LANG / P. THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 943
CONTROL INFO NO. LDW280B3241

FOR THE FOLLOWING PART NO'S. ADD TM-5/R(65) REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9
-17623-19		2	
-18512-11		4	B1
-17711-25		1	C9
-17711-27		1	
-17792-21		1	B9
-17792-23		1	
-18340-15		1	·A4
-18342-11		1	A3
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13		1	·A1
LDW280-18478-15	SEE DWG.	1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2G (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC C EO RELEASE: 3/16

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)
APPROVED BY: DATE 5/13/68 VDI
GROUP LEADER: 5-13-68
STRESS GROUP: 5/13/68
PROJ ENGRG: 5/13/68
5/16/68
PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

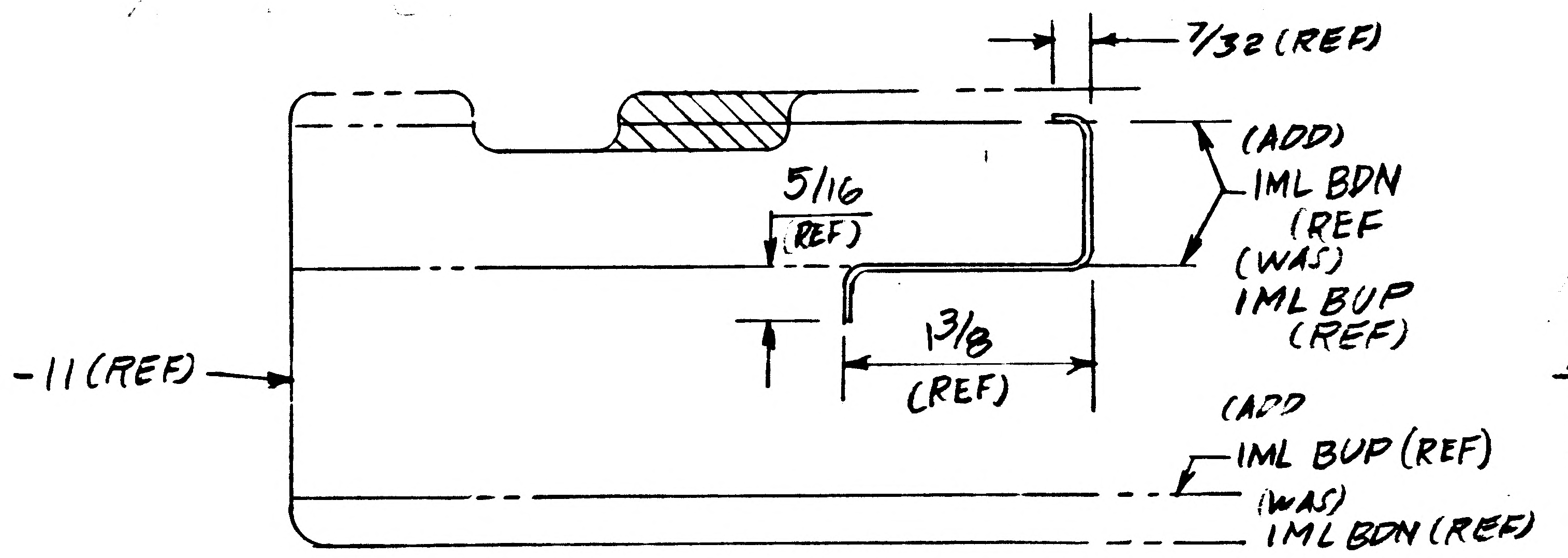
01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18389		EO NO. A5
CONTROL INFO NO. LDW280B7599		

REF. E.O. A3
CHANGE E.O. A3 AS SHOWN



REWORK INFO ONLY
PARTS REWORKED TO EOA3 ACCEPTABLE.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD1433 CCA586 PKG 14 : ⑤

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INTERFERENCE WITH ALSEP PIN RELEASE MECHANISM	REF E.O. A3. ON F/D IML BDN (REF) WAS IML BUP (REF) & IML BUP (REF) WAS IML BDN (REF)	HF 4/12/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
		LM-4 (34) THRU	LM-15 (45)
		DVT (70) TM-5/R (65)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	V.D.I	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~DEPT~~
		KSC			NM			
DATE	4/11/69	TKL		4/11/69	4/11/69		4/11/69	4/12/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET~D/S~SEQ BAY LWR DECK-OUTB'D	LDW280-18389	A5

ISSUED BY W. KAY / P. THORJUSEN x87222 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDFR

DWG. NO. LEO 280
EO NO. 1371
CONTROL INFO NO. LDW280B7431

FOR THE DWGS LISTEL BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18386 ✓	A3	SEE DWG
-18387 ✓	A4	
-18388 ✓	A4	
-18389 ✓	A6	
-18390	A4	
-18391	A3	
-18392	A3	
-18398	A3	
-18401	A4	
LDW280-18402	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		LCD3587 PKG54 PG 7 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: K4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/21/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1371

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 PL 25

01 NAS 9-1100

ENG .. REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280		EO NO. 1562
CONTROL INFO NO. LDW 280B 8114		

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted]) ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №	
✓ LDW280-18381	SEE DWG	A6	
✓ 382		A5	
✓ 386		A4	
✓ 387		A5	
✓ 388		A5	
✓ 389		B1	
390		A5	
391		A4	
392		A4	
LDW280-18401	SEE DWG	A5	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 33 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (123) REQMTS	(E) 8-13-69 JK 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD		DISPOSITION OF PARTS		
				REVISE DWG	RECORD EO	REWORK	SCRAP	
LM		LTA-11 ([redacted]) (23)		✓		NOT REQ'D		

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
					N			Bauman
DATE	7-29-69			7/31/69	8/1/69		7/31/69	8/15/69
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1562

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18390

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	D.V.T.(70)	4
		LM-15(45)	
		LM-14(44)	
		LM-13(43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10(40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6(36)	
		LM-5 (35)	
LM	LDW280-54576	LM-4(34)	4
PART NO. LDW280-18390-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	D.V.T.(70)	2
		LM-15(45)	
		LM-14 (44)	
		LM-13(43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8 (33)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5 (35)	
LM	LDW280-54576	LM4 (34)	2
PART NO. LDW280-18390-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	D.V.T.(70)	1 EA
		LM-15(45)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11 (41)	
		LM-10(40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5 (35)	
LM	LDW280-54576	LM-4 (34)	1 EA
PART NO. LDW280-18390-11, 13 & -15		GAEC SCH NO. 51-2	

WORK PKG FUNCTION NO. 110 (3)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL^G INFO		
		PRIM NO.	JK(001)	
LAST DASH NO. USED	-19	207	MP-16- 10/11/67	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

5 ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 1433 (CCA 586)
OK

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	A. LITVINOFF 9-27-67	RELIABILITY	
LAYOUT BY	F. MARZELLA 9-28-67		
CHECKED BY	D. FASS 9-28-67		
GR LEADER	9/28/67		
VEH DES INT	9/28/67		
STRUCTURES	W/H 10/11/67	PROJ ENGR	9/28/67
STRUCTURES	Hilderman 10/10/67	REL GROUP	10-11-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE ~ SCIENTIFIC EQUIPMENT BAY LOWER DECK ~ OUTBOARD

SIZE	CODE IDENT NO.	
B	26512	LDW280-18390

SCALE NONE | SHEET 1.00 OF 3

CDR 10-1-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18390-19	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.050×2×3	NONE	88	
		LDW280-18390-17	↕	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.050×2×3	NONE	88	
		LDW280-18390-15		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075-O	.040×3×11	T 6	88	
		LDW280-18390-13		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075-O	.063×4×18	T 6	88	
		LDW280-18390-11	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075-O	.040×2×3	T 6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP-14-9030
T 6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18390

SCALE NONE

SHEET 2.00

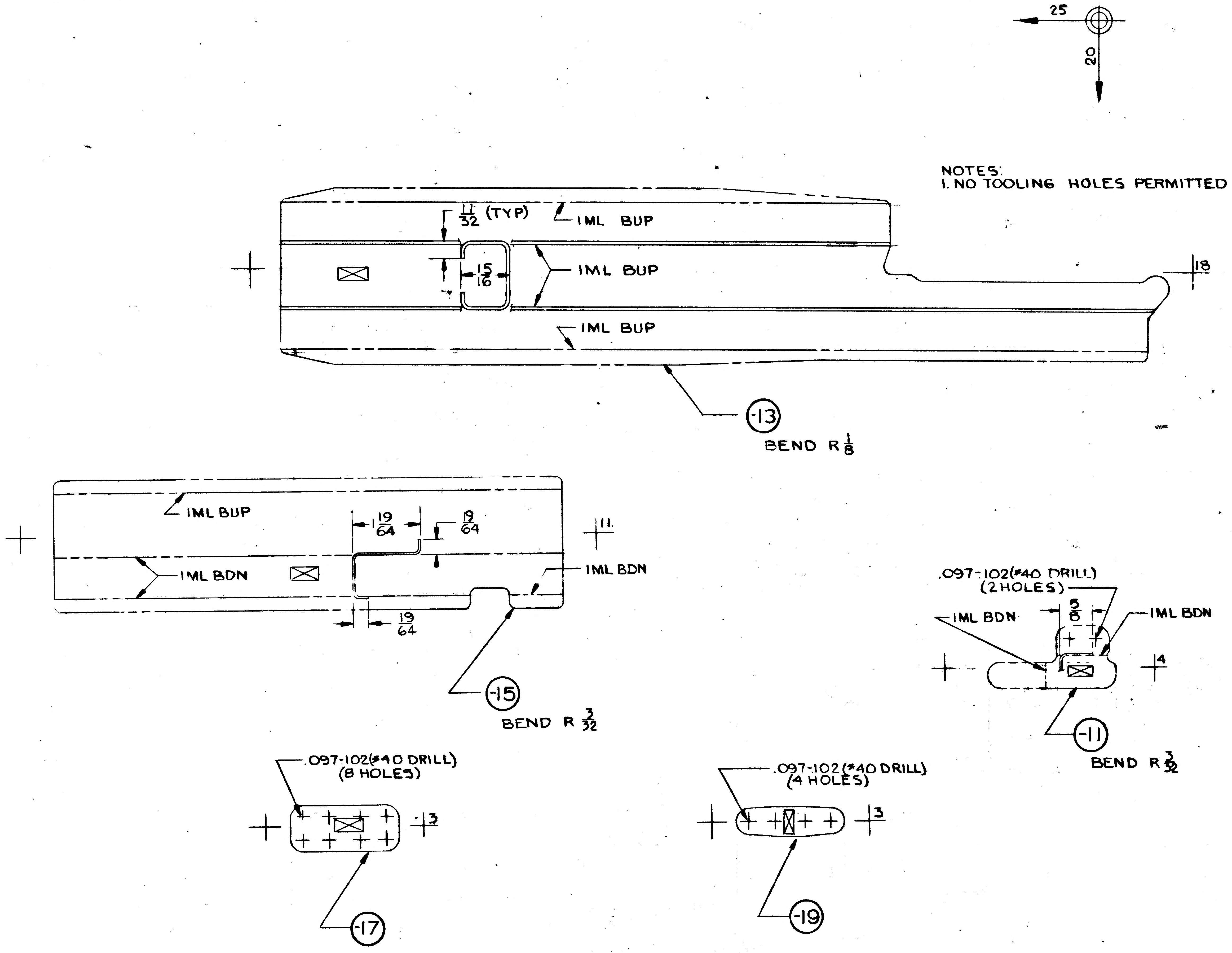
ENG 77.2 7-65

01

NAS 9-1100

4 LDW280-18390

Tram ok
T.S. 9/21/67



25
20
$\frac{11}{32}$ (TYP)
IML BUP
$\frac{15}{16}$
IML BUP
IML BUP
18
-13
BEND R $\frac{1}{8}$
IML BUP
$\frac{19}{64}$
$\frac{9}{64}$
11
IML BDN
IML BDN
$\frac{19}{64}$
-15
BEND R $\frac{3}{32}$
.097-.102(#40 DRILL)
(2 HOLES)
$\frac{5}{8}$
IML BDN
IML BDN
14
-11
BEND R $\frac{3}{32}$
.097-.102(#40 DRILL)
(8 HOLES)
13
-17
.097-.102(#40 DRILL)
(4 HOLES)
13
-19

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM MODEL OR END ITEM	SIZE D	CODE IDENT NO. 26512	LDW280-18390
	SCALE FULL		SHEET 3.00

FOR PHOTO2 REPRODUCTION

LDW280-18390

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 782
CONTROL INFO NO. LDW280A9816

ADD LTA-3(13) EFFECTIVITY TO DASH NO. * OF THE FOLLOWING DWGS:
QUANTITY SAME AS LM-4(34) THRU LM-15 (45)

DWG. NO.	DASH NO. *	N/A	TITLE	CHG. NO.
LDW280-18372	-11,-12,-13,-14,-15,-17,-19	LDW280-54575	SEE DWG.	A1
-18373	-11,-13,-15,-17,-19,-21	-54575		A1
-18386	-11,-13,-15,-16,-17,-19	-54576		A1
-18387	-11,-13,-15,-17,-19,-21	-54576		A1
M17775	-11	-54625		A1
M17778	-11,-13,-15,-17,-19,-21	-54625		A1
M17762	-1	-54625		A1
M17784	-11,-12	-54576		A1
-18388	-11,-13,-14,-15,-16	-54576		A1
-18389	-11,-13,-15,-16	-54576		A1
-18390	-11,-13,-15,-17,-19	-54576		A1
-18351	-1	-54625		A1
LDW280-54593	-1	LDW280-54509	SEE DWG	A1
LDW 280-18411	-13,-15	LDW280-54625	SEE DWG	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD1433 OK. CCA 586 (5)

REASON FOR EO: ALSEP REQUIREMENT

DESCRIPTION OF EO: ADDED LTA-3(13) EFFECTIVITY TO DASH NO. *

GAEC EO RELEASE: C JK 11/1/67

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LTA-3(13)		
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY	JaP			JAY	WJL			
DATE	10/23/67			10/20/67	10/23/67		10/20/67	10-3-67

D

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 782

10/27
ISSUED BY E. RANSOM X7033
SECTION VEH. DES. INT.
GROUP NO. 335
PL 25

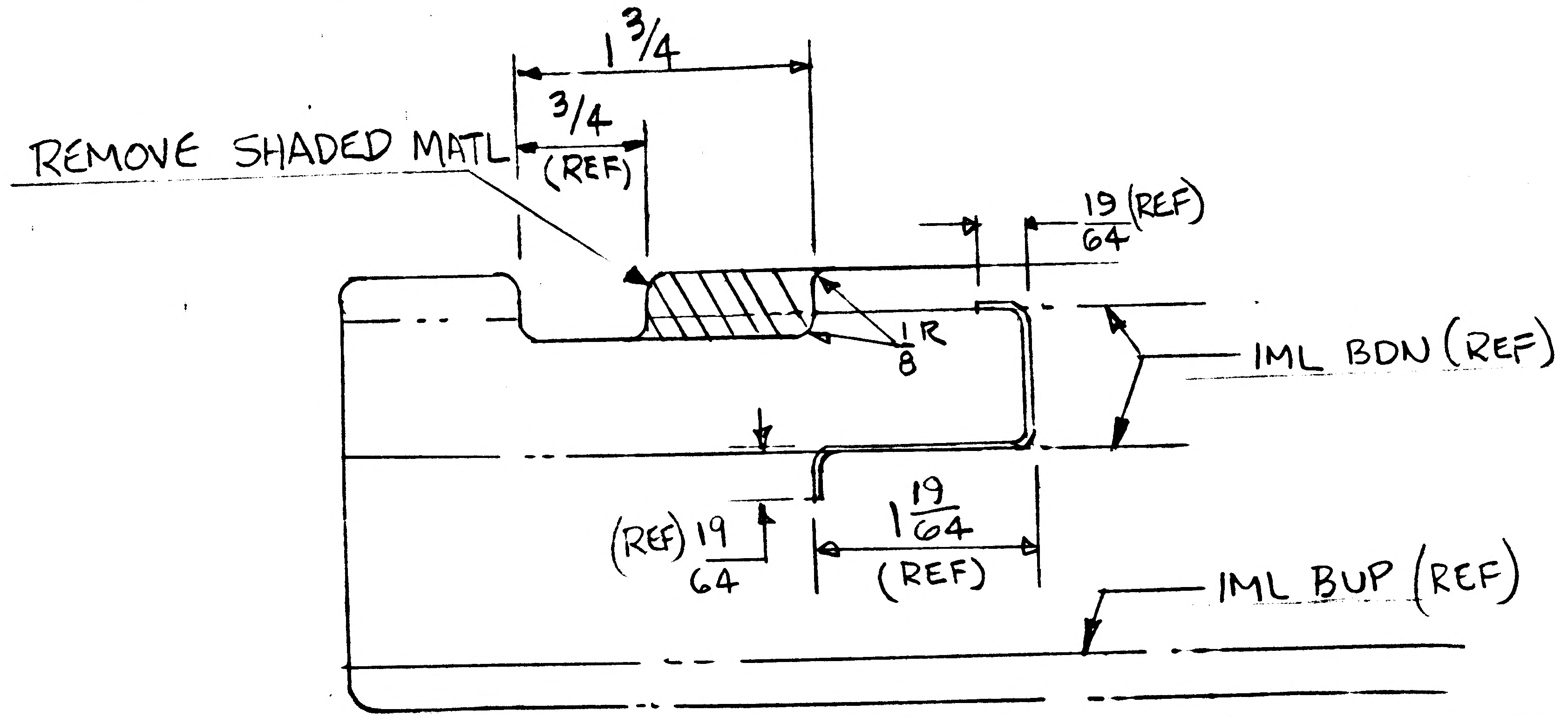
01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18390 | EO NO. A2
CONTROL INFO NO. LDW280B 2898

REWORK -15 AS SHOWN



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA 586 PKG # 14	(5)

REASON FOR EO: INTERFERENCE WITH ALSEP PIN RELEASE MECHANISM

DESCRIPTION OF EO: ON -15 REVISED CUTOUT 1 3/4 (WAS) 3/4

GAEC EO RELEASE: J/C 4/6/68

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	DVT (70)		
LM	LM-4 (34)	THRU LM-15 (45)	
LM	LTA-3 (13)		

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	JMS							
DATE	4/4/68			4-5-68	4/4/68		4/5/68	4-5-68
G	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP - D/S - SEQ BAY LWR DECK - OUTBD	LDW280-18390	A2

4/10/68
ISSUED BY J. LANG | P. THORJUSEN X1153 4/4 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1371
CONTROL INFO NO. LDW280B7431

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO. ✓	CHANGE NO.	DWG NOMENCLATURE
LDW280-18386 ✓	A3	SEE DWG
-18387 ✓	A4	
-18388 ✓	A4	
-18389 ✓	A6	
-18390 ✓	A4	
-18391	A3	
-18392	A3	
-18398	A3	
-18401	A4	
LDW280-18402	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ LCD3587 PKG54 PG 7 CCA1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: K 4/22/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD LO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/21/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1371

052864
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280		EO NO. 1562
CONTROL INFO NO. LDW 280B 8114		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]) ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
✓ LDW280-18381	SEE DWG	A6	
✓ 382		A5	
✓ 386		A4	
✓ 387		A5	
✓ 388		A5	
✓ 389		B1	
390		A5	
391		A4	
392		A4	
LDW280-18401	SEE DWG	A5	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 33 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (123) REQMTS	(E) WB 8-13-69 JK 8/13/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		LTA-11 ([redacted]) (23)		✓		NOT REQ'D	

APPROVED BY							
	PJT				N		Bauman
DATE	7-29-69			7/29/69	8/2/69		8/15/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1562

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18391

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	DSGN VERIFICATION TEST (70)	1
		LTA-3(13)	1
		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-54576	LM-4(34)	1

PART NO. LDW280-18391-17

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54625	DSGN VERIFICATION TEST (70)	2 EA
		LTA-3(13)	2 EA
		LM-15(45)	2 EA
		LM-14(44)	2 EA
		LM-13(43)	2 EA
		LM-12(42)	2 EA
		LM-11(41)	2 EA
		LM-10(40)	2 EA
		LM-9(39)	2 EA
		LM-8(38)	2 EA
		LM-7(37)	2 EA
		LM-6(36)	2 EA
		LM-5(35)	2 EA
LM	LDW280-54625	LM-4(34)	2 EA

PART NO. LDW280-18391-15 & -16

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	DSGN VERIFICATION TEST (70)	1 EA
		LTA-3(13)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54576	LM-4(34)	1 EA

PART NO. LDW280-18391-11, -13, -19, -20 & -21

GAEC SCH NO. 51-2

WORK PACKAGE FUNCTION # 111 5

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED ~

LAST DASH NO. USED -21

GRUMMAN REL INFO

PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS - DECIMALS - ANGLES

±1/32 ±.020 ±1/2°

3 ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433 (CCA 586)

OK

CONTRACT NO. NAS9-1100

DRAWN BY W. CONROY 9-27-67

RELIABILITY

LAYOUT BY MARZELLA

CHECKED BY 9-28-67

GRP LDR

TECH DES INT

STRUCTURES

STRUCTURES ✓

WEIGHTS

PROJ ENGR

REL GROUP 10-26-67

GRUMMAN AIRCRAFT ENGRG CORP

BETHPAGE, L. I., NEW YORK

BRACKET

DESCENT STAGE SCIENTIFIC EQUIPMENT BAY - LOWER DECK

SIZE B

CODE IDENT NO. 26512

LDW280-18391

SCALE NONE

SHEET 1.00 OF 3

CDR 10-13-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18391-21	E	BLOCK	AL ALLOY SH	QQ-A-250/12	7075	.125 X 2 X 1	T6	88	
		LDW280-18391-20	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040 X 3 X 2	T6	88	
		-19		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040 x 3 x 2	T6	88	
		-17		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040 x 3 x 1	T6	88	
		-16		ANGLE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	69222 x 1 1/4	NONE	88	
		-15		ANGLE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	69222 x 1 1/4	NONE	88	
		-13		BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.063 X 6 X 6	T6	88	
		LDW280-18391-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.040 x 5 x 6	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18391

SCALE NONE

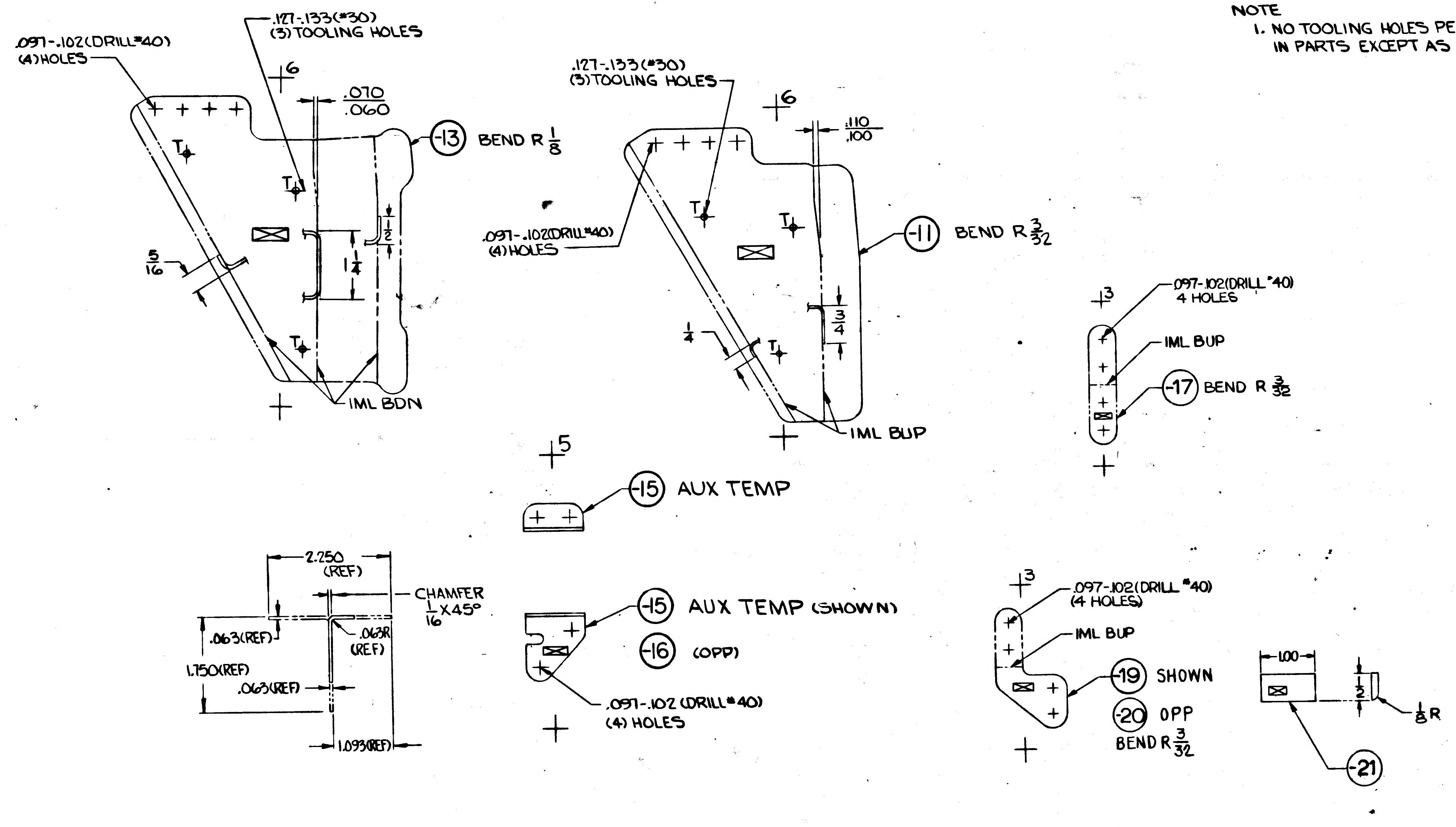
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS EXCEPT AS NOTED.



.097-.102(DRILL #40) (4)HOLES
.127-.133(#30) (3)TOOLING HOLES
6
.070
.060
-13 BEND R 1/8
5/16
1 1/4
1/2
IML BDN
.127-.133(#30) (3)TOOLING HOLES
.097-.102(DRILL #40) (4)HOLES
6
.110
.100
-11 BEND R 3/32
3/4
1/4
IML BUP
5
-15 AUX TEMP
3
.097-.102(DRILL #40) 4 HOLES
IML BUP
-17 BEND R 3/32
2.250 (REF)
CHAMFER 1/16 X45°
.063(REF)
.063R (REF)
1.750(REF)
.063(REF)
1.093(REF)
-15 AUX TEMP (SHOWN)
-16 (OPP)
.097-.102 (DRILL #40) (4) HOLES
3
.097-.102(DRILL #40) (4 HOLES)
IML BUP
-19 SHOWN
-20 OPP
BEND R 3/32
1.00
1/2
1/8 R
-21

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS + 1/32 − 1/32	✓

LDW280-18391

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18391
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO 1 REPRODUCTION

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 1371
CONTROL INFO NO. LDW280B7431	

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18386 ✓	A3	SEE DWG
-18387 ✓	A4	
-18388 ✓	A4	
-18389 ✓	A6	
-18390 ✓	A4	
-18391 ✓	A3	
-18392	A3	
-18398	A3	
-18401	A4	
LDW280-18402	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☐	LCD3587 PKG 54 PG 7	CCA 1821 (5)

REASON FOR EO LM-15 (45) NO LONGER REQD	DESCRIPTION OF EO DELETED LM-15 (45) EFF FROM -*	GAEC EO RELEASE K 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD	REVISE DWG ✓	RECORD EO		
DISPOSITION OF PARTS	REWORK	SCRAP ✓		

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				BJT	WH			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/21/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1371

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1834
CONTROL INFO NO. LDW 2808 9884

FOR THE FOLLOWING DRAWING AND DASH NO.S* NEXT ASSEMBLY LDW280-54625 ADD LTA-3DR/1 (460) TO EFFECTIVITY. SAME QUANTITY AS LM10 (40)

DWG. NO. *	CHANGE NO.	DWG. NOMENCLATURE	N/A
✓ LDN280-18351-1	A5	SEE DWG.	LDW280-54625
✓ LDW280-18410-11-1, -21, -13	B1	↑	↑
✓ LDW280-18411-15, -23	B4		
✓ LDW280-18391-15, -16	A6		
LDW280-71510-11	A4		
LDW280-71511-11	A5		
LDW280M17752-11	A4		
LDW280M17761-11, -13	A4		
LDW280M17762-1	A5	↓	↓
LDW280M17763-1	A5	SEE DWG.	LDW280-54625

* APPLICABLE DASH NO. S

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 70 (5)

REASON FOR EO
PARTS REQUIRED FOR STATIC TEST [LTA-3DR/1(460)]

DESCRIPTION OF EO
ON * ADDED LTA-3DR/1 (460) REQ'MT.S
N/A LDW280-54625

GAEC EO RELEASE (2)
JK 2/6/70

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA3DR/1 (460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REQD REWORK	SCRAP

APPROVED BY	RFT				W/H		RFT	Lm
DATE	2-4-70			2/4/70	2/5/70		2-5-70	2/6/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1834

CDR 020670
ISSUED BY A. GROSS / R. CLARK SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18392

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	DESIGN VERIFICATION TEST (70)	4
		LM-15(45)	4
		LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
		LM-10(40)	4
		LM-9(39)	4
		LM-8(38)	4
		LM-7(37)	4
		LM-6(36)	4
		LM-5(35)	4
		LM-4(34)	4
LM	LDW280-54576	LTA-3 (13)	4

PART NO. LDW280-18392-11
GAEC SCH NO. 51-2

WORK PKG. FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00							
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED —
LAST DASH NO. USED -11
GRUMMAN REL INFO
PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
P ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD1433CCA586

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY PIAZZA 10-18-67
RELIABILITY
LAYOUT BY CLARK
CHECKED BY JCD 10-20-67
GP. LEADER 10/20/67
VEH DES INT 10/20/67
STRUCT 10/21/67
STRUCT 10/21
WEIGHTS
PROJ ENGR
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPRING
DESCENT STAGE-SCIENTIFIC PKG-
LOCK MECHANISM

SIZE B
CODE IDENT NO. 26512
LDW280-18392
SCALE NONE
SHEET 1.00 OF 3

CDR 10/16/67

ENG 77.1 12-65

01

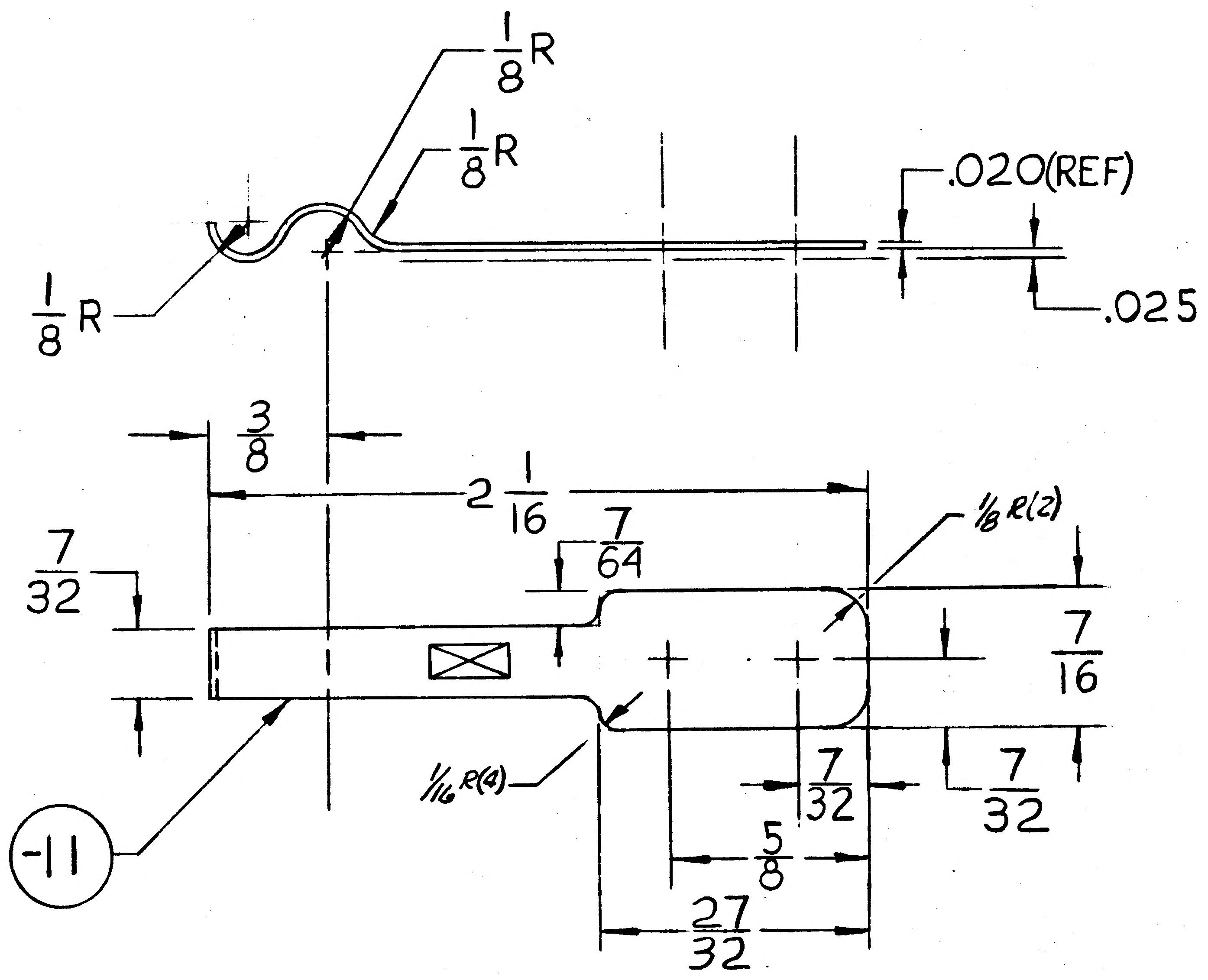
NAS 9 - 1100

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒	✓

NOTES.
1. NO TOOLING HOLES PERMITTED IN PART.
2. HEAT TREAT TO TH 1050 ROCKWELL C39-C44 AS PER LSP14-5102.



1/8 R
1/8 R
1/8 R
.020(REF)
.025
3/8
2 1/16
7/64
1/8 R(2)
7/32
7/16
1/16 R(4)
7/32
7/32
5/8
27/32
-11

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18392

SCALE 2/1
SHEET 3.00

ENG 72.1 6-64

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 943
CONTROL INFO NO. LDW280B3241

FOR THE FOLLOWING PART NO'S. ADD TM-5/R(65) REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9
-17623-19		2	
-18512-11		4	B1
-17711-25		1	C9
-17711-27		1	
-17792-21		1	B9
-17792-23		1	
-18340-15		1	·A4
-18342-11		1	A3
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13		1	·A1
LDW280-18478-15	SEE DWG.	1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG [✓] LCD 3075 CCA 586 PKG 2G (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC EO RELEASE: K 5/16/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

PRIORITY: C

DRAWING TITLE: SEE DWG.

APPROVED BY	JAS			P8T	N/K		GAP	
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5/16/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

DRAWING NO. LEO 280
EO NO. 943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1562
CONTROL INFO NO. LDW 280B 8114

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 ~~(40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18381	SEE DWG	A6
✓ 382		A5
✓ 386		A4
✓ 387		A5
✓ 388		A5
✓ 389		B1
✓ 390		A5
✓ 391		A4
✓ 392		A4
LDW280-18401	SEE DWG	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (123) REQMTS

GAEC EO RELEASE: (E) 8-13-69; JK 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted])	
		(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					N			Bauman
DATE	7-29-69			7/31/69	8/2/69		8/4/69	8/15/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1562

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18393

PART NO LDW280-18393-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54537	LM-15(45)	1
		THRU	
LM	LDW280-54537	LM-4 (34)	1
LM	LDW280-23537	LTA-3(13)	1

PART NO. LDW280-18393-15 & -17 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23529	LM-15(45)	1 EA
		THRU	
LM	LDW280-23529	LM-4(34)	1 EA
LM	LDW280-23529	LTA-3(13)	1 EA

PART NO. LDW280-18393-13 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23538	LM-15(45)	1
		THRU	
LM	LDW280-23538	LM-4 (34)	1
LM	LDW280-23538	LTA-3(13)	1

PART NO. LDW280-18393-11 — GAEC SCH NO. 51-3

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54533	LM-15(45)	1
		THRU	
LM	LDW280-54533	LM-4 (34)	1
LM	LDW280-23533	LTA-3(13)	1

WORK PACKAGE FUNCTION NO. 111 —3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO — PRIM NO. 207 — JK(001) — MP-16- 9/18/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE ✓

CLASS I ENGRG CHANGE

LCD 1997

OK

CONTRACT NO.	NAS 9-1100	LINE ITEM	DOCUMENTATION TYPE II
DRAWN BY	E. SICK 9/13/67	RELIABILITY	
LAYOUT BY	J. LANG		
CHECKED BY	D. FASS 9-13-67		
GR LEADER	9/13/67		
VEH DES INT	9/13/67		
STRUCTURE	NM 9/14/67	PROJ ENGR	
STRUCTURE		REL GROUP	
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE-BEAM PANEL-
SPLICE STRAP

SIZE	CODE IDENT NO.		
B	26512	LDW280-18393	
SCALE	NONE	SHEET 1.00 OF 3	

ENG 77.1 12-65

CDR 9-15-67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18393-19	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075	.040×4×4	T6	88	
		-17	↕	↕	↕	↕	7075-T6	.040×4×5	NONE	↕	
		-15	↕	↕	↕	↕	7075-T6	.040×4×5	NONE	↕	
		-13	↕	↕	↕	↕	7075-T6	.040×4×5	NONE	↕	
		LDW280-18393-11	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075	.040×4×5	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18393

SCALE NONE

SHEET 2.00

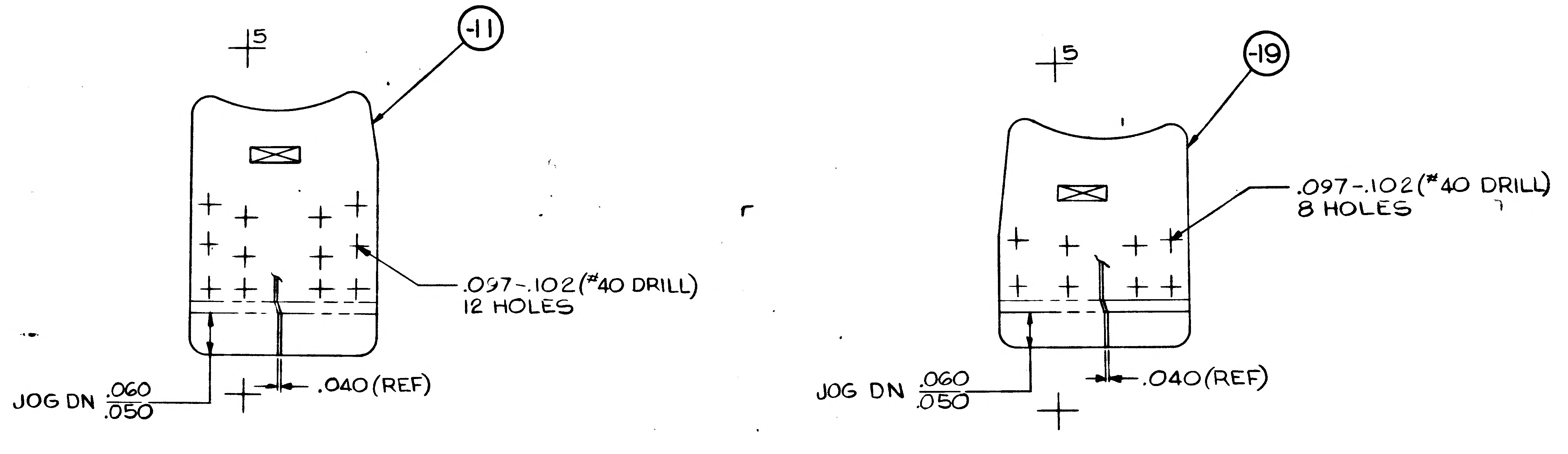
(-)

ENG 77.2 7-65

01

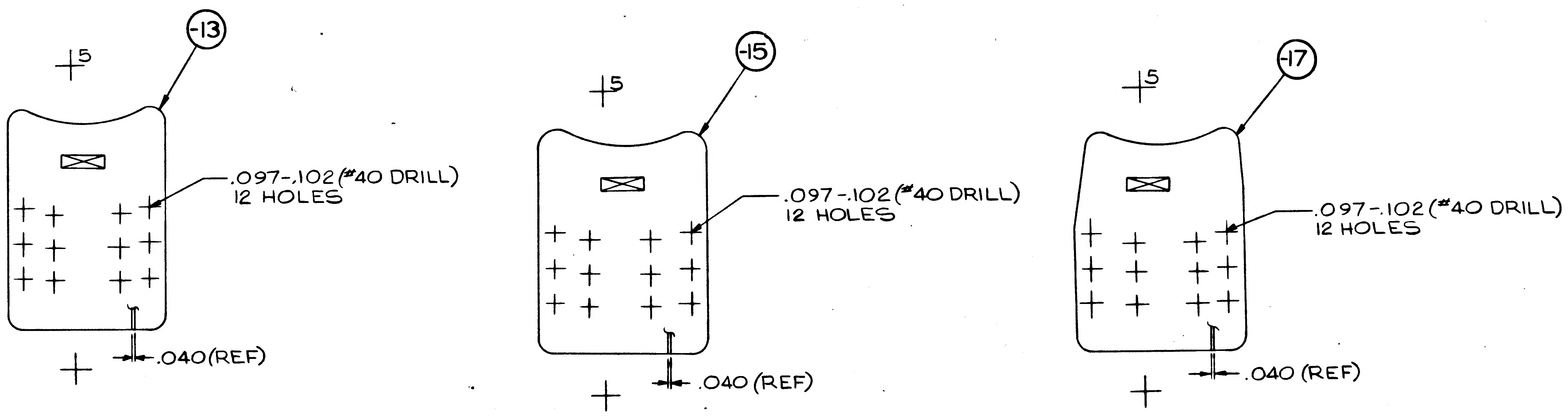
NAS 9-1100

TRAN OK
TS [illegible]



+5
-11
.097-.102(#40 DRILL)
12 HOLES
JOG DN .060/.050
.040(REF)
+5
-19
.097-.102(#40 DRILL)
8 HOLES
JOG DN .060/.050
.040(REF)

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.



+5
-13
.097-.102(#40 DRILL)
12 HOLES
.040(REF)
+5
-15
.097-.102(#40 DRILL)
12 HOLES
.040 (REF)
+5
-17
.097-.102(#40 DRILL)
12 HOLES
.040 (REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18393

LDW280-18393

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I. NEW YORK

LM	SIZE F	CODE IDENT NO. 26512	LDW280-18393
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

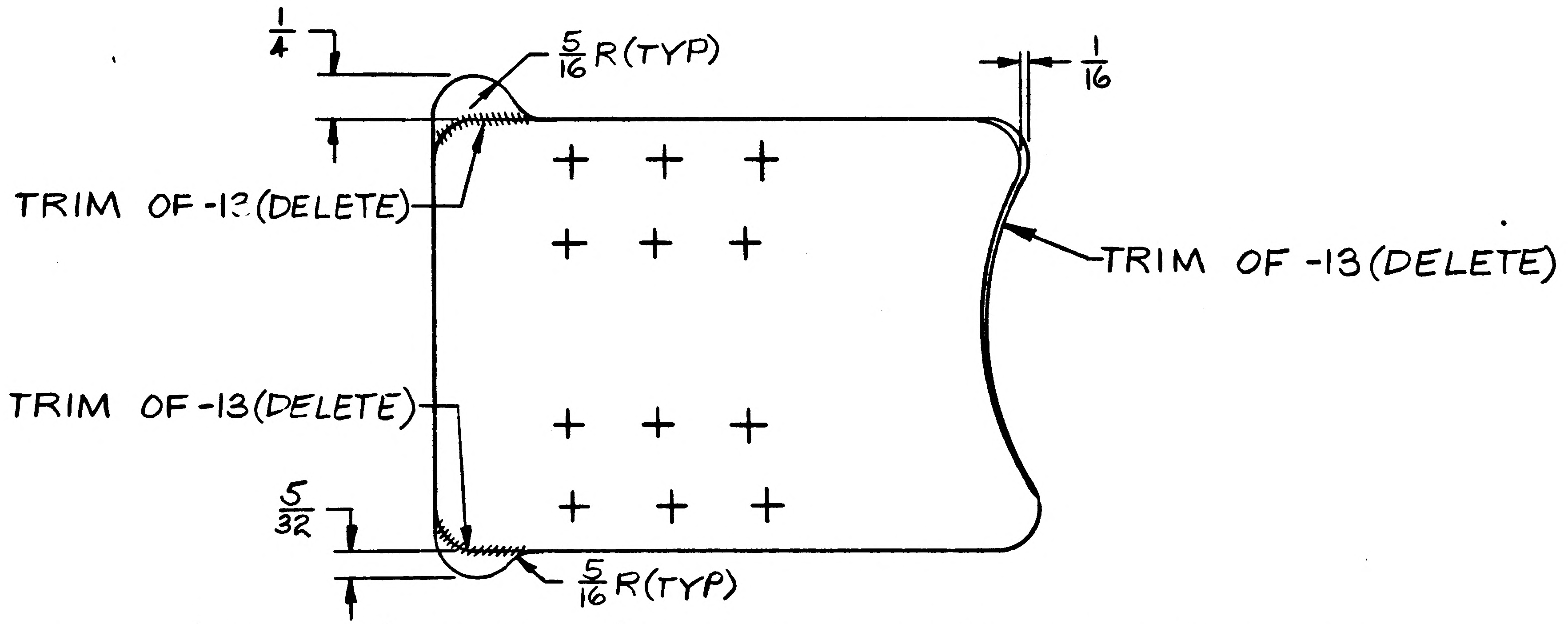
K2

ENG 73-5 6-64

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18393	EO NO. A1
CONTROL INFO NO. LM-2-4039	



IN FLD/DWG, B/M & MOD/BLK, REPLACE -13 WITH -21
(-21 IS IDENTICAL TO -13 EXCEPT AS SHOWN)

TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
MAT'L EXTENSION REQD IN ORDER TO PROPERLY PICKUP EXISTING FASTENERS IN WEB	IN FLD/DWG, B/M & MOD/BLK, REPLACED -13 WITH -21.	JK 02035

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D(13)	
		LM-4(34)THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	10/26/67			—	10/18/67	10/17/67	10/25/67	10/19/67
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE~DESCENT STAGE~BEAM PANEL~SPLICE STRAP	LDW280-18393	A1

ISSUED BY LIAISON J. MALONEY 10/17/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-18393 | EO NO. A2
CONTROL INFO NO. LDW280A9508

ON -11 -21 -15 -17 & -19 REMOVED LTA-3(13),
& LM-6(36) THRU LM-15(45) REQMTS

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ✓ | CL I ENGRG CHG ☐ | LCD 2220 LCD 2183 | 3

REASON FOR EO: REMOVE ELEC HARNES SLOT
CHANGE MIN WEB GAGE

DESCRIPTION OF EO: IN -11 -21 -15 -17 & -19 MOD/BLK, REMOVED LTA-3(13)
LM-6(36) THRU LM-15(45) REQMTS

Ⓡ GAEC EO RELEASE: C
JK 10/31/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
		LM-6(36) THRU	LM-15(45)
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY				P8+	WJB		WRB	
DATE	10/25/67			10-25-67	10/25/67		10/26/67	10-31-67
B	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: PLATE - D/S - BEAM PANEL SPLICE STRAP
DRAWING NO.: LDW280-18393
EO NO.: A2

11/2
ISSUED BY J. LANG / P. THORJUSEN X1153 SECTION VD1 GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 EO NO. 1706
CONTROL INFO NO. LOW280 B7913

FOR DASH NOS.* NOTED ON THE FOLLOWING DRAWINGS
REMOVE LM-10 (40) THRU LM-14 (44) EFFECTIVITY.

DRAWING NO.	DASH NO (*)	TITLE	N/A	CHG
✓ LDW280-18393	-19	SEE DWG	LDW280 54537	A3
LDW280-17663	-15, -17, -19, -21, -22, -23, -24	SEE DWG	LDW280 54537	B5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG65 (5)

REASON FOR EO: BATTERIES RELOCATED TO AFT BULKHEAD.

DESCRIPTION OF EO: FOR (*) REMOVED LM-10(40) THRU LM-14(44) EFF.

GAEC EO RELEASE: 10-3-69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40)	THRU LM-	14(44)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	F.DR				WH			
DATE	10/2/69			10-2-69	10/3/69		10/3/69	10/3/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO280
EO NO.: 1706

CDR100869
ISSUED BY PAT GARAHAN / GUS HANSMANN SECTION VEH DES INT X87222 GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18394

PART NO. LDW280-18394-17&19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23532	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
		LM-4(34)	1 EA
LM	LDW280-23532	LTA-3(13)	1 EA
		GAEC SCH NO.	

PART NO. LDW280-18394-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23539	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
LM	LDW280-23539	LTA-3(13)	1
		GAEC SCH NO.	

PAPT NO. LDW280-18394-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23536	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
LM	LDW280-23536	LTA-3E(13)	1

PART NO. LDW280-18394-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54534	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-54534	LM-4(34)	1
		GAEC SCH NO. 51-3	

WORK PKG FUNCTION NO.111 3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO
PRIM NO. JK(601) 207 11-P-16 9/18/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE
LCD 1997
OK

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	P.CAPPADORO 9/14/67	RELIABILITY	
LAYOUT BY	J. ANDERSEN		
CHECKED BY	D.FASS 9-14-67		
GR LEADER	9/14/67		
VEH DES INT	9/16/67		
STRUCTURES	NM Will 9/15/67	PROJ ENGR	J.G. McCloughan 9/16/67
STRUCTURES		REL GROUP	9-16-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPLICE
DESCENT STAGE~BEAM PANEL WEB

SIZE B | CODE IDENT NO. 26512 | LDW280-18394
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 9/15/67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18394-19	E	SPLICE	AL ALLOY SH	QQ-A-250/12	7075	.040×4×7	T6	88	
		-17					7075-T6	.040×4×5	NONE		
		-15					7075	.040×3×7	T6		
		-13						.040×4×5			
		LDW280-18394-11	E	SPLICE	AL ALLOY SH	QQ-A-250/12	7075	.040×4×5	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	HEAT TREAT	MIL-H-6088

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18394

SCALE NONE

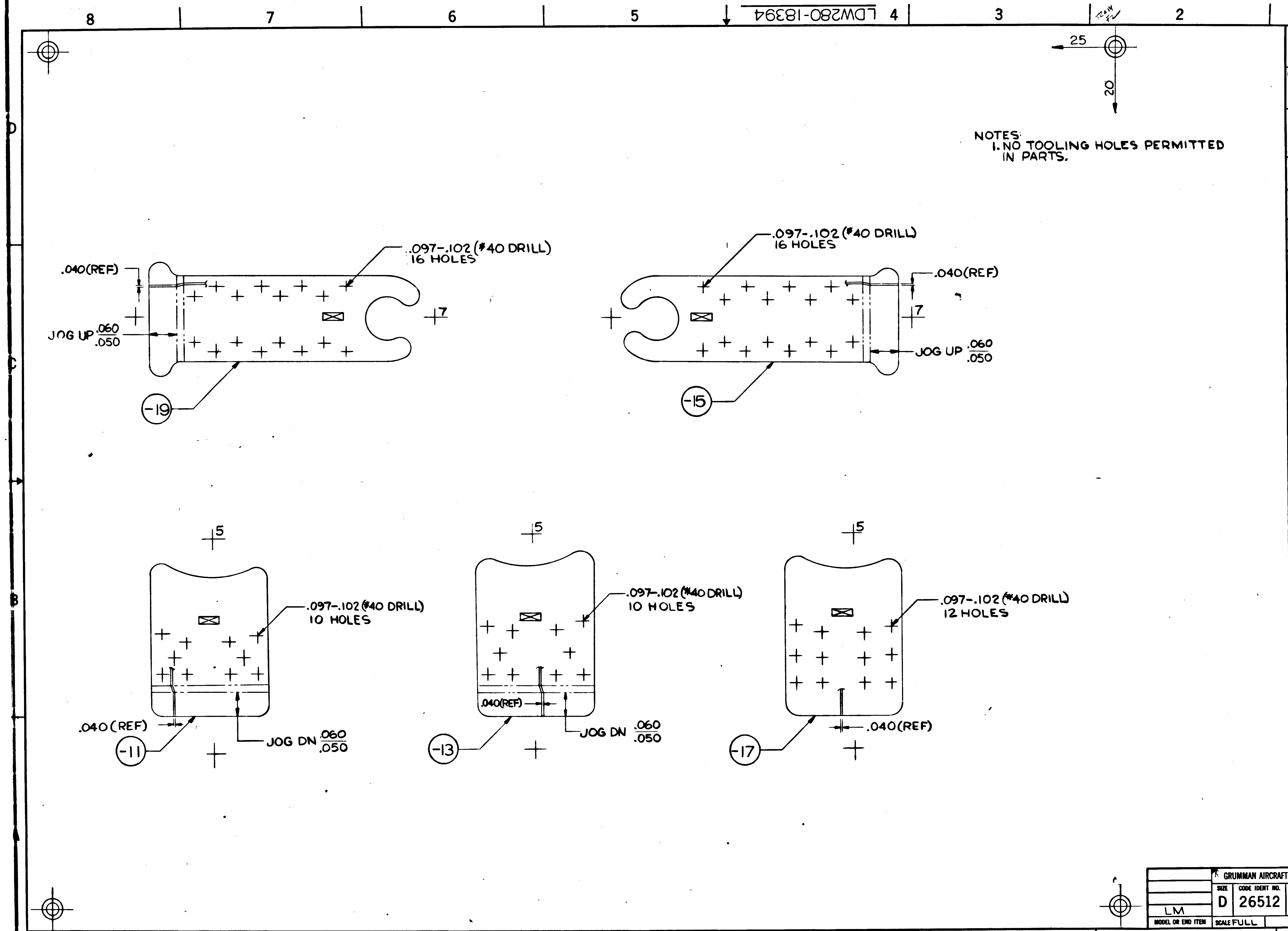
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



25
20
.040(REF)
.097-.102 (#40 DRILL)
16 HOLES
JOG UP $\frac{.060}{.050}$
7
-19
.097-.102 (#40 DRILL)
16 HOLES
.040(REF)
7
JOG UP $\frac{.060}{.050}$
-15
5
.097-.102 (#40 DRILL)
10 HOLES
.040 (REF)
JOG DN $\frac{.060}{.050}$
-11
5
.097-.102 (#40 DRILL)
10 HOLES
.040(REF)
JOG DN $\frac{.060}{.050}$
-13
5
.097-.102 (#40 DRILL)
12 HOLES
.040(REF)
-17

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
$\overline{125}\sqrt{}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\overline{200}\sqrt{}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL $\sqrt{}$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	D	26512	LDW280-18394
	SCALE FULL		SHEET 3.00

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18394
EO NO. A1
CONTROL INFO NO. LM-2- 4056

IN FLD, B/M, M/B DELETE -15 EFF LTA-3(13), LM-4 (34) THRU LM -15 (45) & ADD -21 EFF LTA-3 (13), LM-4(34) Thru LM-15(45)

-21 IDENTICAL TO -15 EXCEPT JOG UP .060/.050 S/B JOG DN .060/.050

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	2

REASON FOR EO: INCORRECT JOGGLE CALLOUT

DESCRIPTION OF EO: IN FLD, B/M, M/B DELETED -15 & REPLACED WITH -21 EFF LTA-3(13), LM-4(34) Thru LM-15(45)

GAEC EO RELEASE: JK 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) thru	
		LM-15(45)	
		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-15

				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				—			WEB	
DATE	10/23/67			—	10/17/67	10/17/6	10/26/67	10/18/67
	VD1	SUPPORT	RELIAB. GROUP					

PRIORITY: C
DRAWING TITLE: D/S - BEAM SPLICE PANEL WEB
DRAWING NO.: LDW280-18394
EO NO.: A1

ISSUED BY LIAISON C. Farley x3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-18398

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23534	LTA-3 (13)	1 EA
LM	LDW280-54534	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
LM	LDW280-54534	LM-4 (34)	1 EA

PART NO. LDW280-18398-13-15-16-17-21 & -23 — GAEC SCH NO. 514

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23522	LTA-3 (13)	1 EA
LM	LDW280-54522	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
LM	LDW280-54522	LM-4 (34)	1 EA

PART NO. LDW280-18398-11 & -19 — GAEC SCH NO. 513

WORK PACKAGE FUNCTION #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00				
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED ~

LAST DASH NO. USED -21

GRUMMAN REL INFO — PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

S ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2011 CCA 668

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY W. CONROY 10-11-67
LAYOUT BY E. COMISKEY
CHECKED BY J. BELL 10/13/67
GRP LDR J. STRAKOSCH 10-13-67
VEH DES INT 10/13
STRUCTURES 10/20/67
STRUCTURES
WEIGHTS
RELIABILITY
PROJ ENGR 10/21
REL GROUP

③ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - FORWARD
UPPER DECK

SIZE B
CODE IDENT NO. 26512
LDW280-18398 ⊖
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

(O.K.)

CDR 10/13

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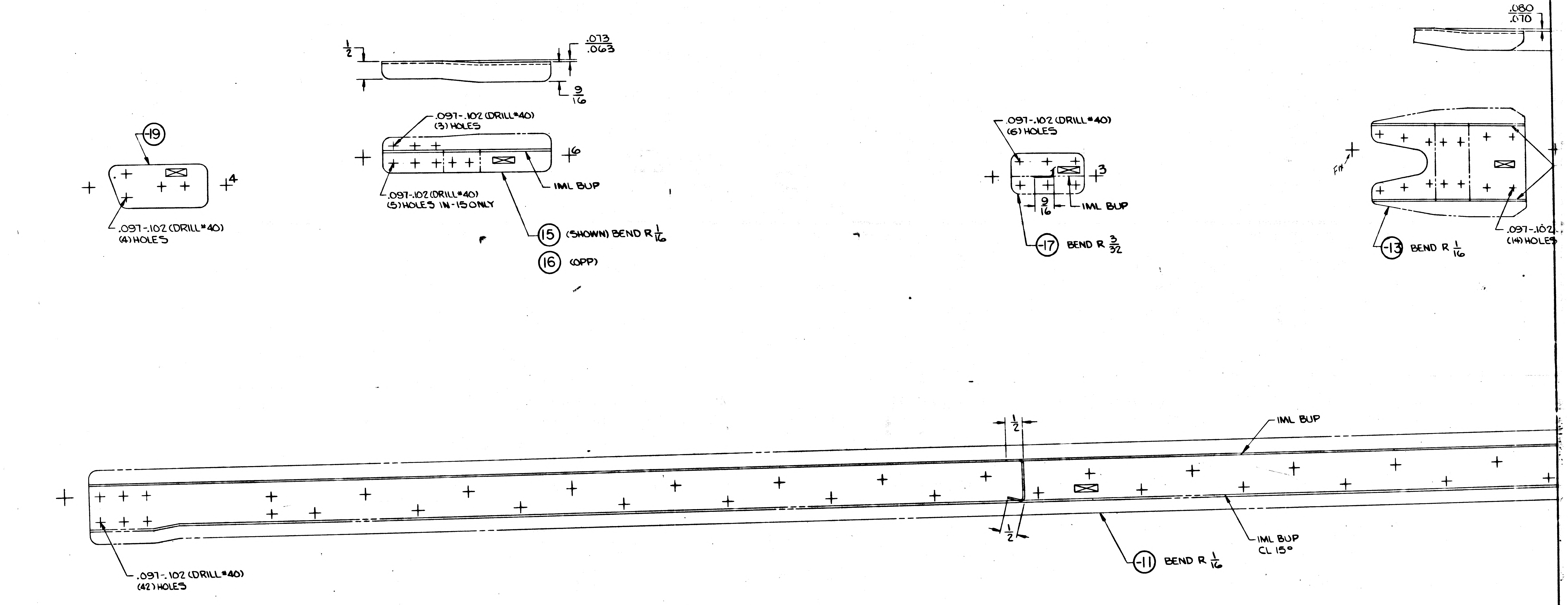
NAS 9-1100

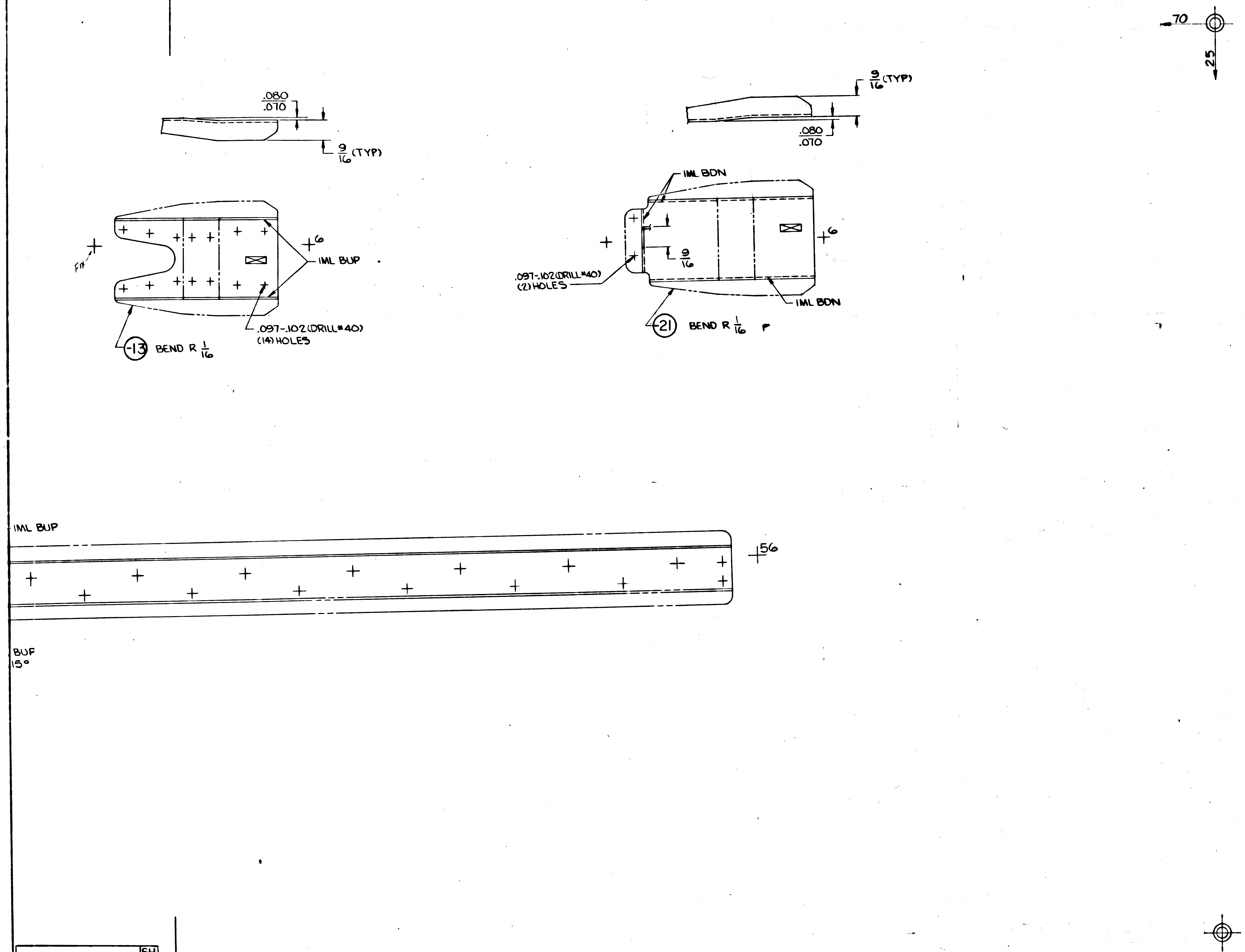


-19
.097-.102 (DRILL#40)
(4) HOLES
1/2
.073
.063
9/16
.097-.102 (DRILL#40)
(3) HOLES
.097-.102 (DRILL#40)
(5) HOLES IN -15 ONLY
IML BUP
15 (SHOWN) BEND R 1/16
16 (OPP)
.097-.102 (DRILL#40)
(6) HOLES
9/16
IML BUP
-17 BEND R 3/32
.080
.070
.097-.102
(14) HOLES
-13 BEND R 1/16
IML BUP
1/2
1/2
.097-.102 (DRILL#40)
(42) HOLES
-11 BEND R 1/16
IML BUP
CL 15°

01/02 NAS 9-1100

LDW280-18398 SH 3

4 3 2 1



MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 28x88
PRINTING INFO ONLY
FULL SIZE SHEET AREA (30x96) = 20 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 5 SQ. FT.
PRINT TRIM LINE

D C B A

LDW280-18398

LDW280-18398

02/02 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
	SIZE H	CODE IDENT NO. 26512	LDW 280-18398	
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

LDW280-18398	SH 3

4 3 2

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GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 1371
CONTROL INFO NO. LDW280B 7431

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18386 ✓	A3	SEE DWG
-18387 ✓	A4	
-18388 ✓	A4	
-18389 ✓	A6	
-18390 ✓	A4	
-18391 ✓	A3	
-18392 ✓	A3	
-18398 ✓	A3	
-18401	A4	
LDW280- 18402	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ LCD3587 PKG 54 PG 7 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM - *

GAEC EO RELEASE: K 4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/21/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1371

ISSUED BY: 052869 MEVORAH / THORJUSEN X86046 SECTION: VEH DES INT GROUP NO. 335 PL. 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 1689

CONTROL INFO NO. LDW280B 8467

FOR THE FOLLOWING DRAWINGS & DASH NO'S: *, N/A LDW280-54534, REMOVE LM10(40) THRU LM14(44) EFF.

DWG. NO.	* DASH NO.	TITLE	CHANGE NO.
LDW280 -18419 ✓	-17, -19	SEE DWG.	A5
-18398 ✓	-13, -15, -16, -21, -25		A6
-18451	-13, -15, -17, -19		A4
-18452	-11, -13		A3
M17789	-11		A5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3994 PK64 (5)

REASON FOR EO: BEAM PANEL REDESIGNED FOR MESA, GOX & H2O SPRT.

DESCRIPTION OF EO: FOR * N/A LDW280-54534 REMOVE LM10(14) THRU LM14(44) EFF.

GAEC EO RELEASE (P): SJB 9-23-9; JK 9/23/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU LM14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JDR			PBT	WW		H Dai	[illegible]
DATE	9/22/69			9-22-69	9/23/69		9/23/69	9/24/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1689

CDR 092669

ISSUED BY A. FURIO 86046 SECTION UDI GROUP NO. 335 PL 25

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NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10, 2.00, 3.00				✓		EO A1 LCD 1866	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO	LTA-5 (15)	NOT	REQD	DOVAK 12-13-67	☒	☒
	2	1.00, 1.10, 2.00, 3.00				✓		EO A2 LCD 1866	ADDED -23, -25, -27 & -29. FOR -11 & -15 ADDED N/A LDW280-25526 & N/A LDW280-25527. FOR -15 .062 STOCK (REF) WAS .125 STOCK (REF) NB	LTA-5 (15)	-15				

CHG APPROVED LTR	GROUP LDR RE-DS INT	STRUCT	WEIGHTS	RELIABILITY					
A									

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18400	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

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LM	LDW280-25527	LTA-5 (15)	1 EA
↕	LDW280-25526	↕	↕
	LDW280-25525		
LM	LDW280-25524	LTA-5 (15)	1 EA

PART NO. LDW280-18400-11 & -15

LDW280-18400 A

LM	LDW280-25525	LTA-5 (15)	2 EA
LM	LDW280-25524	LTA-5 (15)	2 EA

PART NO. LDW280-18400-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25527	LTA-5 (15)	2 EA
LM	LDW280-25526	LTA-5 (15)	2 EA
PART NO. LDW280-18400-25		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25527	LTA-5 (15)	1 EA
LM	LDW280-25526	LTA-5 (15)	1 EA
PART NO. LDW280-18400-23, -27 & -29		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25525	LTA-5 (15)	1 EA
LM	LDW280-25524	LTA-5 (15)	1 EA
PART NO. LDW280-18400-13, -17 & -21		GAEC SCH NO. 51	

WORK PKG FUNTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	[illegible]	2.00	3.00						
REV	A	[illegible]	A	A						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REL INFOA	
LAST DASH NO. USED	-29	PRIM NO. 207	K(001) mP-1A-1/ol?

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 1866	

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE

DRAWN BY	DOVAK 12-13-67	RELIABILITY	
LAYOUT BY	BARNES 9-18-67		
CHECKED BY	H. BERNSTEIN H-6-68		
GP. LEADER	J.H.S. 10-4-67		
VEH. DES. INT.	G.W.B. 9-18-67		
STRUCT	W.J.H.-FEB. 10-5-7	PROJ ENGR	R.S.H 9-18-67
STRUCT		REL GROUP	J. GROD 10-19-7
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE. L. I., NEW YORK

DOUBLER
DESCENT STAGE - END BULKHEAD

SIZE	CODE IDENT NO.		
B	26512	LDW280-18400	A
SCALE NONE		SHEET 1.00 OF 4	

ENG 77.1 12-65

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NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18400-29	E	DOUBLER	AL ALY SH	QQ-A-250/12	7075-T6	.032 X 3 X 33	NONE	76	
		-27		FILLER		QQ-A-250/4	2024-T3	.125 X 2 X 12			
		-25		FILLER		QQ-A-250/4	2024-T3	.125 X 2 X 10			
		-23		WEB		QQ-A-250/12	7075-T6	.032 X 33 X 63			
		-21		WEB		QQ-A-250/12	7075-T6	.032 X 33 X 63			
		-19		FILLER		QQ-A-250/4	2024-T3	.125 X 2 X 10			
		-17		FILLER		QQ-A-250/4	2024-T3	.125 X 2 X 12			
		-15		FILLER		QQ-A-250/4	2024-T3	.062 X 2 X 33			
		-13		DOUBLER		QQ-A-250/12	7075-T6	.032 X 3 X 33			
		LDW280-18400-11	E	DOUBLER	AL ALY SH	QQ-A-250/12	7075-T6	.032 X 3 X 33	NONE	76	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						76	ALODINE	LSP-14-9010

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18400	A

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

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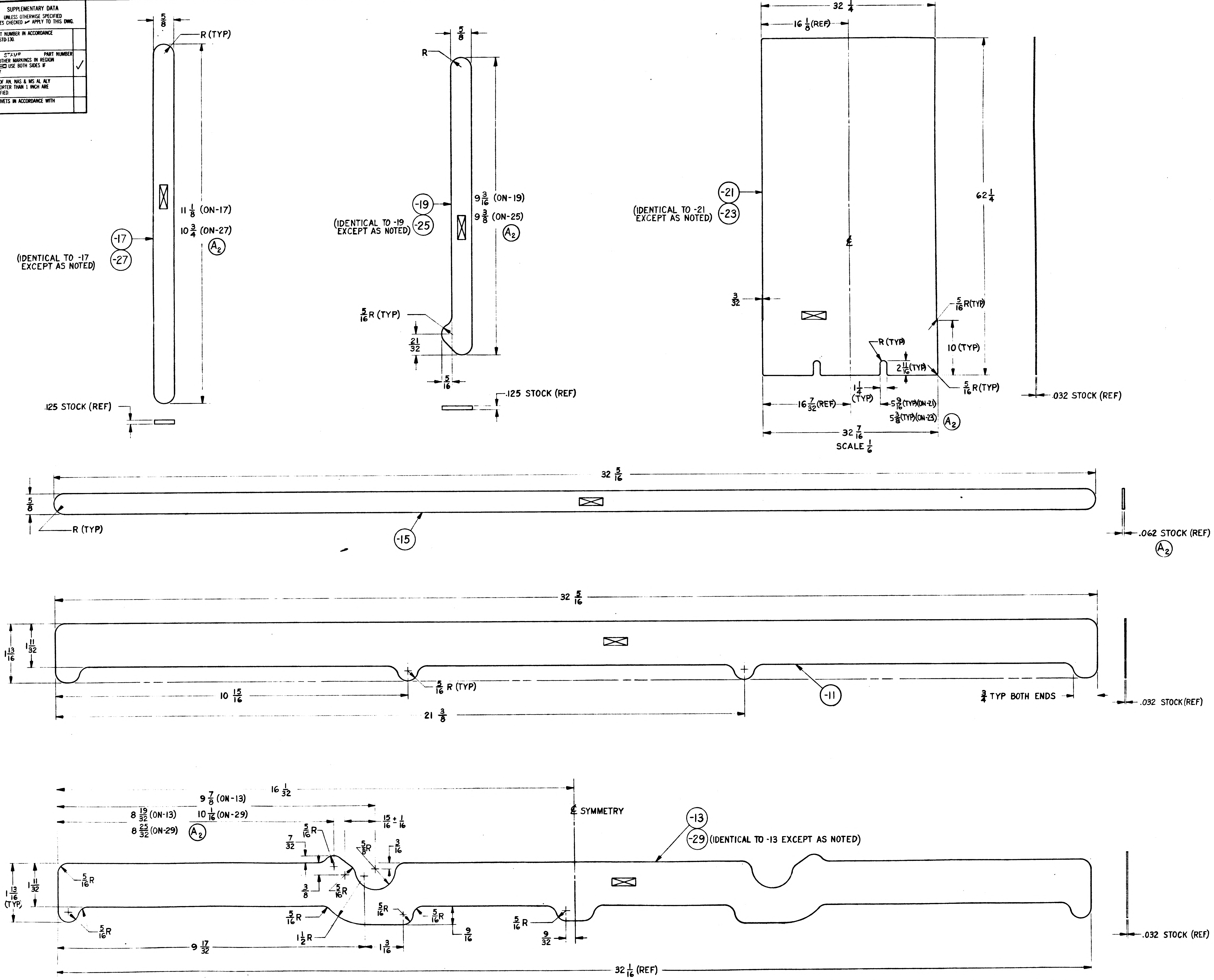
NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

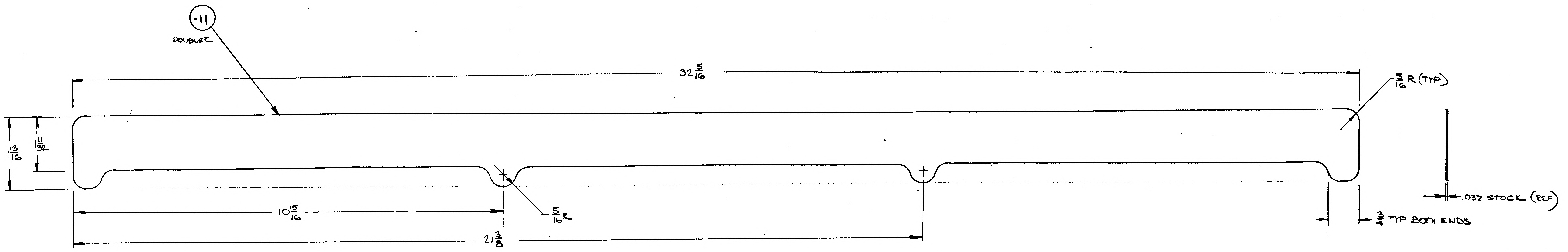


8
7
6
5
4
3
2
1
5/8
R (TYP)
11 1/8 (ON-17)
10 3/4 (ON-27)
A2
-17
(IDENTICAL TO -17 EXCEPT AS NOTED)
-27
.125 STOCK (REF)
5/8
R
9 3/16 (ON-19)
9 3/8 (ON-25)
-19
(IDENTICAL TO -19 EXCEPT AS NOTED)
-25
5/16 R (TYP)
21/32
5/16
.125 STOCK (REF)
32 1/4
16 1/8 (REF)
-21
(IDENTICAL TO -21 EXCEPT AS NOTED)
-23
62 1/4
℄
3/32
5/16 R (TYP)
10 (TYP)
R (TYP)
2 11/16 (TYP)
5/16 R (TYP)
1 1/4 (TYP)
16 7/32 (REF)
5 9/16 (TYP)(ON-21)
5 3/8 (TYP)(ON-23)
32 7/16
SCALE 1/6
.032 STOCK (REF)
32 5/16
5/8
R (TYP)
-15
.062 STOCK (REF)
32 5/16
1 13/16
1 11/32
5/16 R (TYP)
10 15/16
21 3/8
-11
3/4 TYP BOTH ENDS
.032 STOCK (REF)
16 1/32
9 7/8 (ON-13)
10 1/16 (ON-29)
8 19/32 (ON-13)
8 25/32 (ON-29)
15/16 + 1/16
℄ SYMMETRY
-13
-29 (IDENTICAL TO -13 EXCEPT AS NOTED)
7/32
5/16 R
5/8 R
3/16
3/8
5/8 R
5/16 R
1 13/16 (TYP)
1 11/32
5/16 R
5/16 R
5/16 R
5/16 R
5/16 R
1 1/2 R
9/16
5/16 R
9/32
9 17/32
1 3/16
32 1/16 (REF)
.032 STOCK (REF)

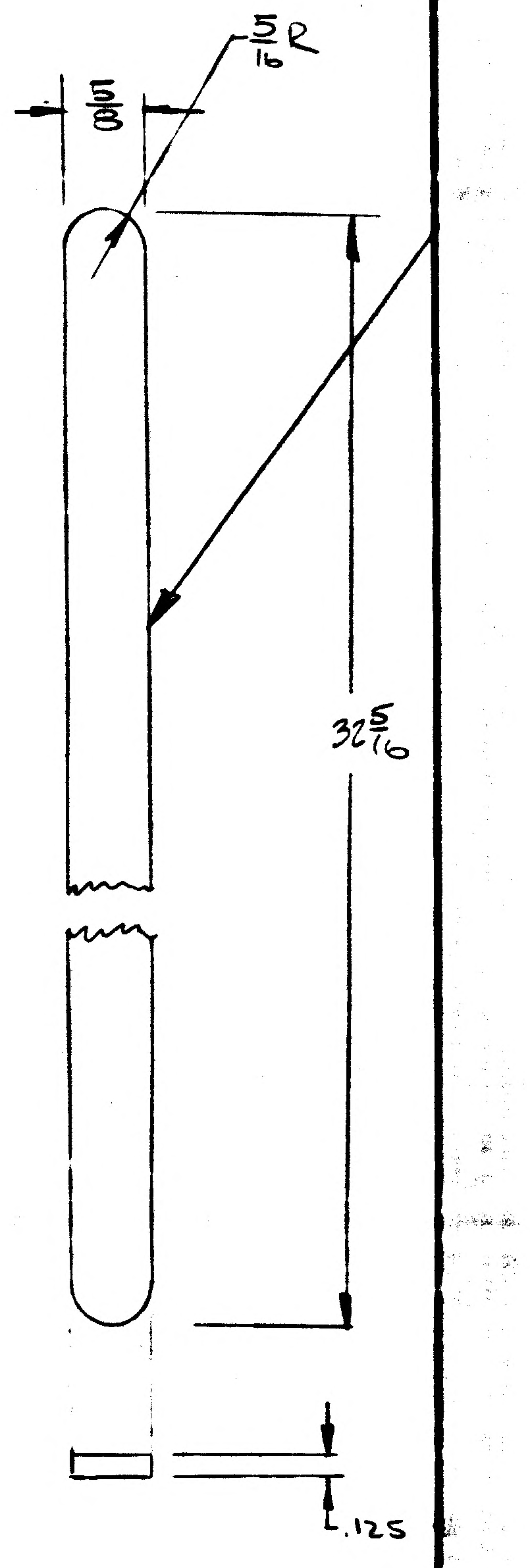
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

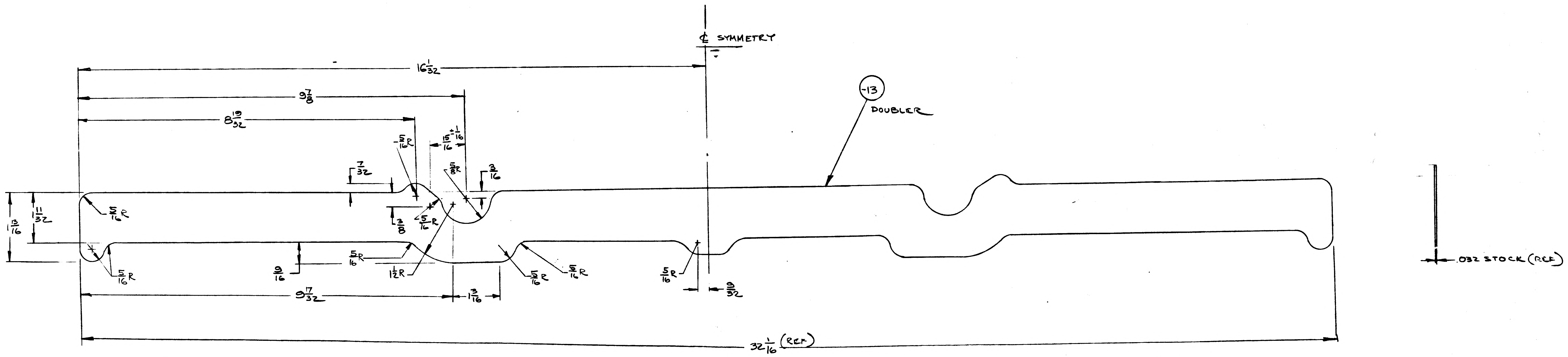
SIZE	CODE IDENT NO.		
E	26512	LDW280-18400	A
SCALE FULL & NOTED		SHEET	



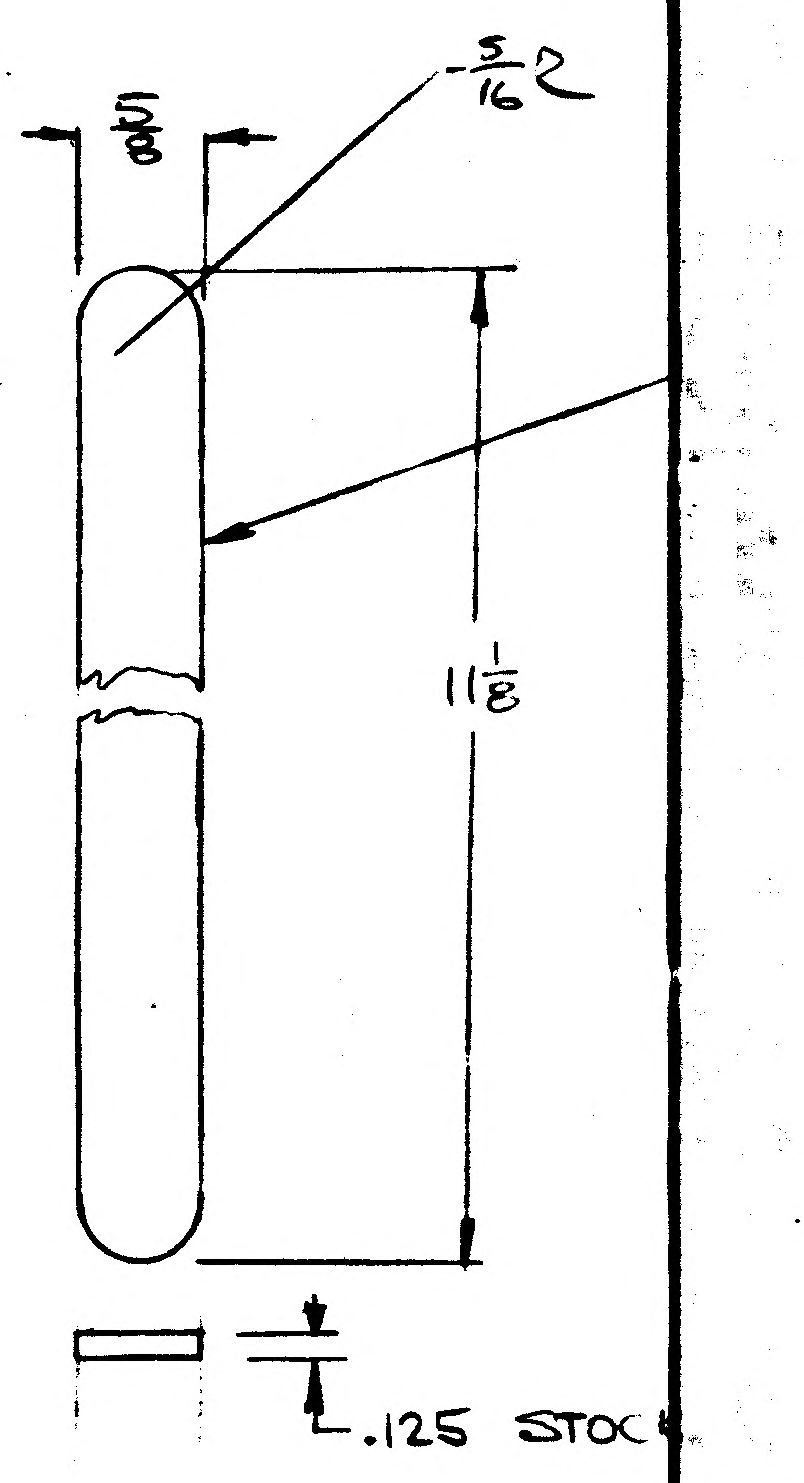
-11
DOUBLER
32 5/16
5/16 R (TYP)
1 13/16
1 11/32
5/16 R
10 15/16
21 3/8
.032 STOCK (REF)
3/4 TYP BOTH ENDS



5/8
5/16 R
32 5/16
.125



℄ SYMMETRY
16 1/32
9 7/8
8 19/32
-13
DOUBLER
5/16 R
15/16
+1/16
5/8 R
3/16
7/32
11/32
1 13/16
3/8
5/16 R
9/16
5/16 R
1 1/2 R
5/16 R
5/16 R
5/16 R
9 17/32
1 3/16
9/32
32 1/16 (REF)
.032 STOCK (REF)



5/8
5/16 R
11 1/8
.125 STOC

01/02 NAS 9-1100

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NAS 9-1100

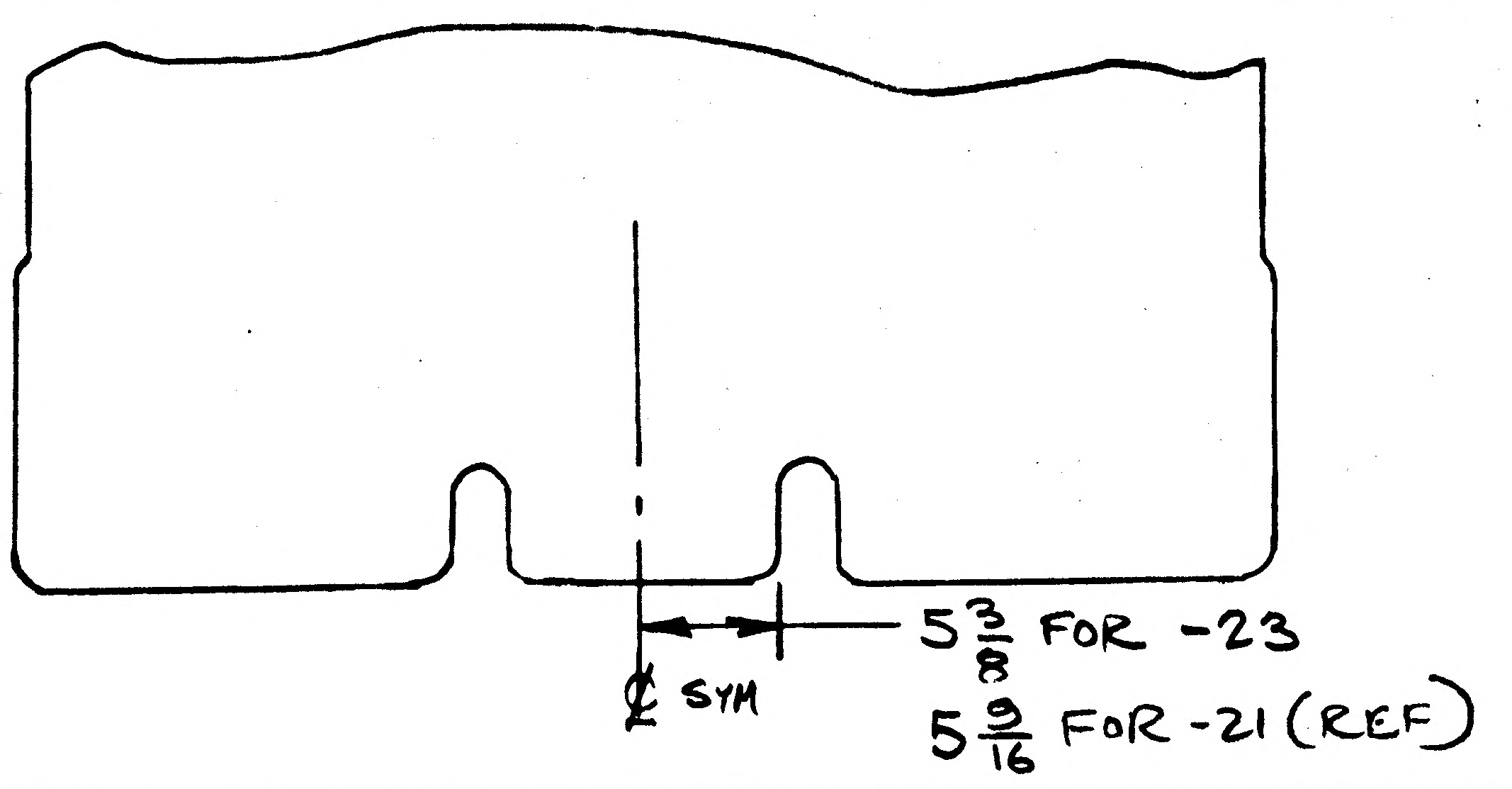
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 ✳
ENGINEERING ORDER

DWG. NO.	LDW280-18400	EO NO.	A2
CONTROL INFO NO.	LDW 82-3300		

ADD -23 IDENT TO -21 EXCEPT THAT $5\frac{3}{8}$ DIM REPLACES $5\frac{9}{16}$ DIM

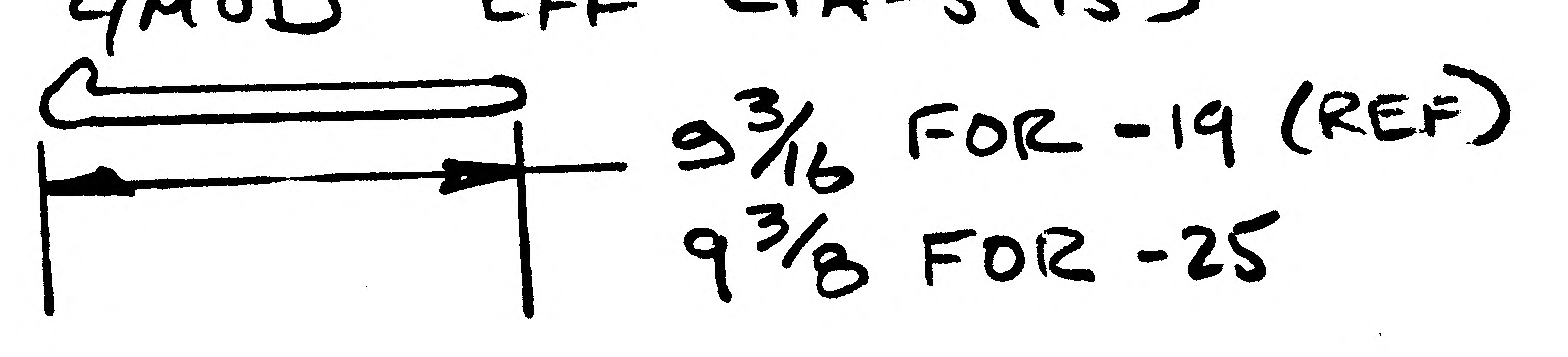
-23 N/A LDW280-25527 1/MOD EFF LTA-5(15)
N/A LDW280-25526 1/MOD EFF LTA-5(15)



$5\frac{3}{8}$ FOR -23
℄ SYM
$5\frac{9}{16}$ FOR -21 (REF)

ADD -25 IDENT TO -19 EXCEPT THAT LGTH $9\frac{3}{8}$ REPLACES $9\frac{3}{16}$

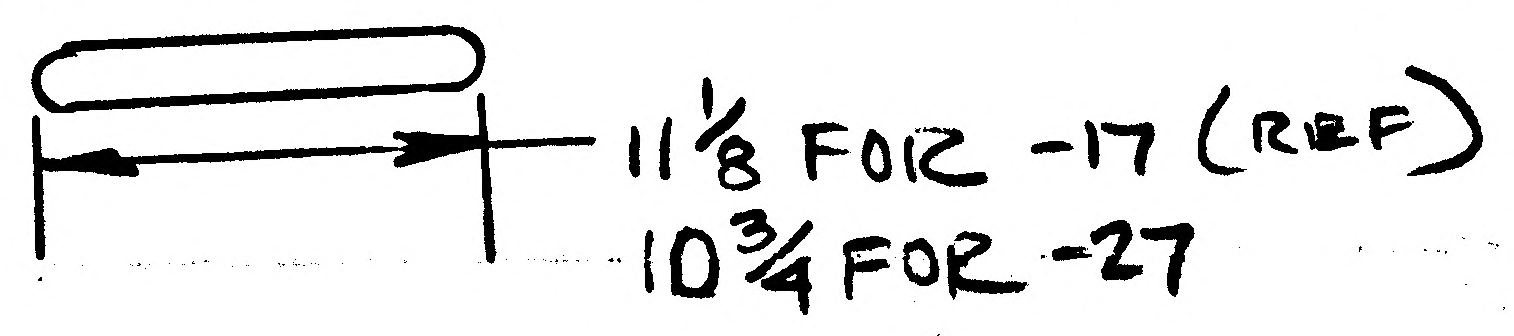
-25 N/A LDW280-25527 2/MOD EFF LTA-5(15)
N/A LDW280-25526 2/MOD EFF LTA-5(15)



$9\frac{3}{16}$ FOR -19 (REF)
$9\frac{3}{8}$ FOR -25

ADD -27 IDENT TO -17 EXCEPT THAT LGTH $10\frac{3}{4}$ REPLACES $11\frac{1}{8}$

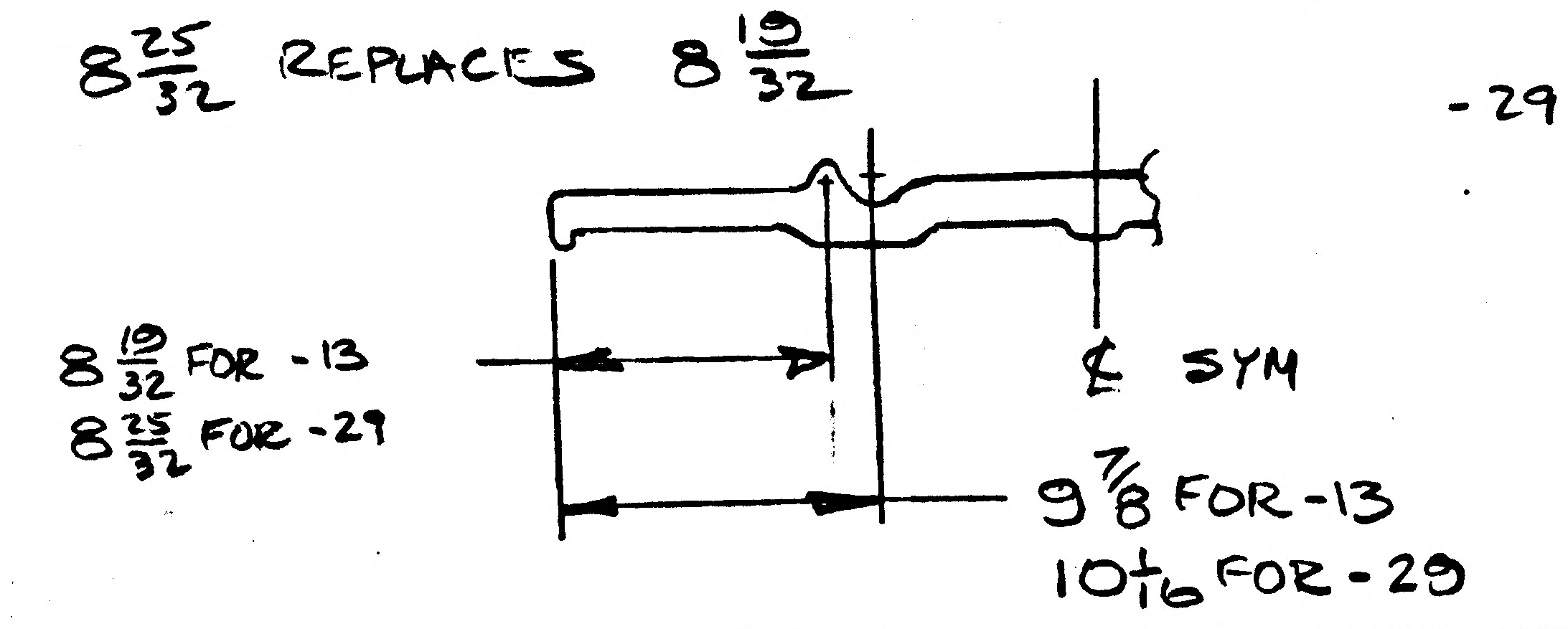
-27 N/A LDW280-25527 1/MOD
N/A LDW280-25526 1/MOD
EFF ON LTA-5



$11\frac{1}{8}$ FOR -17 (REF)
$10\frac{3}{4}$ FOR -27

ADD -29 IDENT TO -13 EXCEPT THAT $10\frac{1}{16}$ DIM REPLACES $9\frac{7}{8}$
& $8\frac{25}{32}$ REPLACES $8\frac{19}{32}$

-29 N/A LDW280-25527 1/MOD
LDW280-25526 1/MOD
EFF LTA-5(15)



$8\frac{19}{32}$ FOR -13
$8\frac{25}{32}$ FOR -29
℄ SYM
$9\frac{7}{8}$ FOR -13
$10\frac{1}{16}$ FOR -29

FOR -11 & -15 ADD N/A LDW280-25526 1EA/MOD
LDW280-25527 1EA/MOD

FOR -15 .125 STOCK (REF) S/B .062 STOCK (REF)
✳ PARTS NOT MADE

ALL PARTS I&T=E CONT NAS 9-1100

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1866 (82)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REPAIR OF END BULKHEADS DUE TO FIRE DAMAGE LCR 1866	ADDED -23 -25 -27 & -29; FOR -11 & -15 ADDED N/A LDW280-25526 & N/A LDW280-25527; FOR -15 .062 STOCK (REF) WAS .125 STOCK (REF)	JK 10/31/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-5(15)	

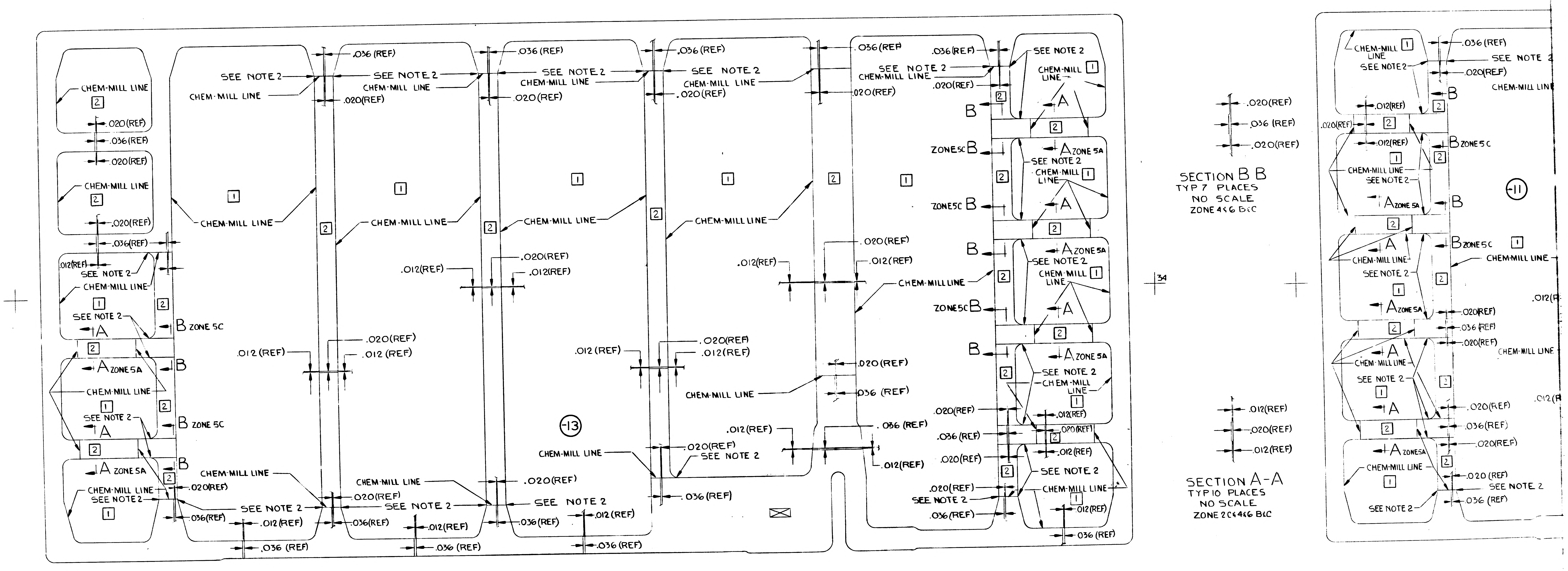
DRAWING CHANGE REQD		DISPOSITION OF PARTS		
REVISE DWG	RECORD EO	REWORK	SCRAP	PRIORITY
✓		-15 ✳		C

	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	[illegible]	JaP			N/A		[illegible]	Bott
DATE	9/28	10/2/67			10/30/67		9/29/67	9-29-67

	DRAWING TITLE	DRAWING NO.	EO NO.
D/S	DOUBLER END BULKHEAD	LDW280-18400	A2

ISSUED BY G. BARNES / J. STRAKOSCH X1153 SECTION YDI GROUP NO. 335 PL 82

LDW280-18401 SH3



CHEM-MILL LINE
SEE NOTE 2
.036 (REF)
.020 (REF)
.012 (REF)
1
2
A ZONE 5A
B ZONE 5C
ZONE 5C B
-13
-11
34
SECTION B B
TYP 7 PLACES
NO SCALE
ZONE 4&6 B&C
SECTION A-A
TYP 10 PLACES
NO SCALE
ZONE 2C&4&6 B&C

01/02 NAS 9-1100

CODE IDENT NO	DWG NO	SHEET
26512	LDW280-18401	3

1 FRAME FRAME 2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18121
EO NO. A2
CONTROL INFO NO. LDW280A 3959

IN M/B FOR -11 & -13, EFF LTA-8 ONLY, ON N/A LDW280-28688 ONLY, CHANGE QUAN REQ'D FROM (48) EA PER MOD. TO (68) EA. PER MOD.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: ADDITIONAL ANGLES REQ'D FOR SPT OF INBD EDGE OF HEATER SKINS.

DESCRIPTION OF EO: IN M/B FOR -11 & -13, ON N/A LDW280-28688 ONLY, (68) EA PER MOD WAS (48) EA. PER MOD.

GAEC EO RELEASE: FR 12/2/66

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS
✓		NOT REQ'D

	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					NM		RWC	
DATE	12/2/66			12/2/66	12/2/66		12-2-66	12/2/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE - DES STG. ~ REM. BASE HEAT SHLD	LDW280-18121	A2

ISSUED BY R.WINK/J.STRAKOSCH SECTION VEH. DES. INT. GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO. LDW 280-18370

EO NO. A1

CONTROL INFO NO. LDW 280 A 0643

FOR LDW 280-18370-11, -13 & -15 REMOVE LM-4 (34) THRU LM-15 (45) & D.U.T. (70) REQMTS.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 1433 / CCA 586

REASON FOR EO: ALSEP THERMAL DOOR REDESIGN.

DESCRIPTION OF EO: FOR -11, -13 & -15 REMOVED LM-4 (34) THRU LM-15 (45) & D.U.T. (70) REQMTS.

GAEC EO RELEASE: JM 11/29/67

5

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34) THRU	
		LM-15 (45) &	
		D.U.T. (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			✓
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JWS			PSS	wjh		gap	Botti
DATE	11/28/67			11-27-67	11/28/67		11/29/67	11-29-67
B	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL ~ D.S. ~ SEQ BAY ~ THERMAL DOOR - DRIVE PULLEY SPT.	LDW 280-18370	A1

11/1/67
ISSUED BY GUS HANSMANN X 9505 SECTION V.D.I. GROUP NO. 280 PL 25

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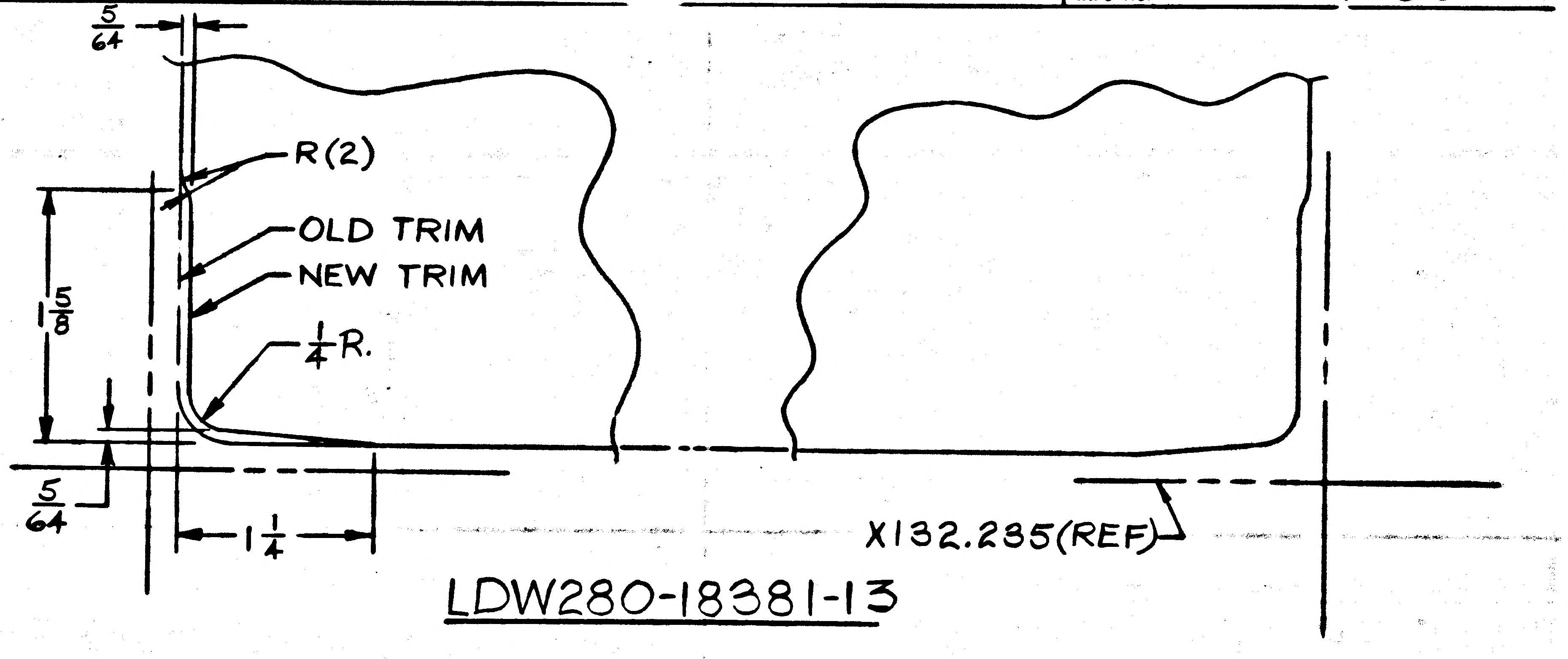
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18381	EO NO.	A3
CONTROL INFO NO.	LM-2-4389		



LDW280-18381-13

FOR REWORK FINISH TRIMMED AREA #76 (ALODINE) TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA586	(2)

REASON FOR EO: ELIMINATE INTERFERENCE WITH ADJACENT STRUCTURE AT ASSEMBLY

DESCRIPTION OF EO: IN FLD/DWG, TRIMMED -13

GAEC EO RELEASE: VU

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D(13) LM-4(34) THRU LM-15(45) DVT(70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JaP			—	MJS	CtP	JaP	02025
DATE	1/24/68			—	1/20/68	1/20/68	1/24/68	1-22-68

PRIORITY: C

DRAWING TITLE: WEB-DESCENT STAGE-SCIENTIFIC EQUIPMENT SUPPORT & BULKHEAD

DRAWING NO.: LDW280-18381

EO NO.: A3

ISSUED BY LIAISON J. MALONEY 1/19/68 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280		EO NO. 1641
CONTROL INFO NO. LDW280B	8441	

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/	LDW 280 -	SEE DRAWING	LDW280	
	-17882		-23578	B6
/	-17883		-23578	C3
/	M17628		-23578	C2
/	-18381		-23578	A7
	-17713		-54577	D3
	-17715		-54577	C3
	-18348		-54577	A5
	-18378		-54577	A6
	-18616		-54679	A2
	LDW 280 - 71512		LDW280 -54679	A4

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD3890 PKG 70 PG 4,5, 6, 7, 8 (5)

REASON FOR EO
ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO
ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE
Sab 8-21-9
JK 8/28/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓ REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY							
		NOT REQ'D		DATE	8-8-69			8/11/69	8/12/69		8/12/69	8-27-69
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LE0280	1641

8-26-69
ISSUED BY A. FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280		EO NO. 943	
CONTROL INFO NO. LDW280B3241			

FOR THE FOLLOWING PART NO'S. ADD TM-5/R(65) REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9
-17623-19		2	
-18512-11		4	B1
-17711-25		1	C9
-17711-27		1	
-17792-21		1	B9
-17792-23		1	
-18340-15		1	·A4
-18342-11		1	A3
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13		1	·A1
LDW280-18478-15	SEE DWG.	1	

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NAS 9-1100

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3075 CCA 586 PKG 2G (5)				
REASON FOR EO: ADD TM-5/R(65) REQMTS.				DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.				GAEC C EO RELEASE: 5/16/68	
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY	JAS		
LM		TM-5/R(65)		✓ REVISE DWG / RECORD EO	NOT REQD REWORK / SCRAP	DATE	5/13/68		
							VDI / SUPPORT / RELIAB. GROUP / GROUP LEADER 5-13-68 / STRESS GROUP 5/13/68 / LIAISON ENGRG / PROJ ENGRG 5/13/68 / ~~GOVT~~ 5/16/68		
				PRIORITY C	DRAWING TITLE: SEE DWG.			DRAWING NO. LEO 280	EO NO. 943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280 | EO NO. 1562
CONTROL INFO NO. LDW 280B 8114

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18381	SEE DWG	A6
✓ 382		A5
✓ 386		A4
387		A5
388		A5
389		B1
390		A5
391		A4
392		A4
LDW280-18401	SEE DWG	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: (E) WB 8-13-69; JK 9/8/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
					N			Bauman
DATE	7-29-69			7/29/69	8/2/69		8/8/69	8/15/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1562

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18388
EO NO. A2
CONTROL INFO NO. LDW280B1302

IN MB ON -14&-15 N/A LDW280-23576 (WAS)
LDW 280-54576 EFF: LM-3(33) 2 REQ'D/MOD

DETAIL SPEC REQ	☑
CL II ENGRG CHG	☐
CL I ENGRG CHG	☐

REASON FOR EO
TO AGREE WITH CDR LIST.
(CDR LIST)

DESCRIPTION OF EO
IN MB ON -14&-15 N/A LDW280-23576 (WAS)
LDW280-54576 EFF: LM-3(33) 2 REQ'D/MOD

GAEC EO RELEASE (5)
JK 1/18

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
					N/U		
DATE	1/15/68			1-15-68	1-16-68	1/15/68	1-18-68
	VDI						

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL D/S - SCIENTIFIC EQUIP. BAY - MECHANISM SUPPORT	LDW280-18388	A2

ISSUED BY D. SHAPIRO/P. THORJUSEN X-1153 SECTION VDI GROUP NO 335 PL 25

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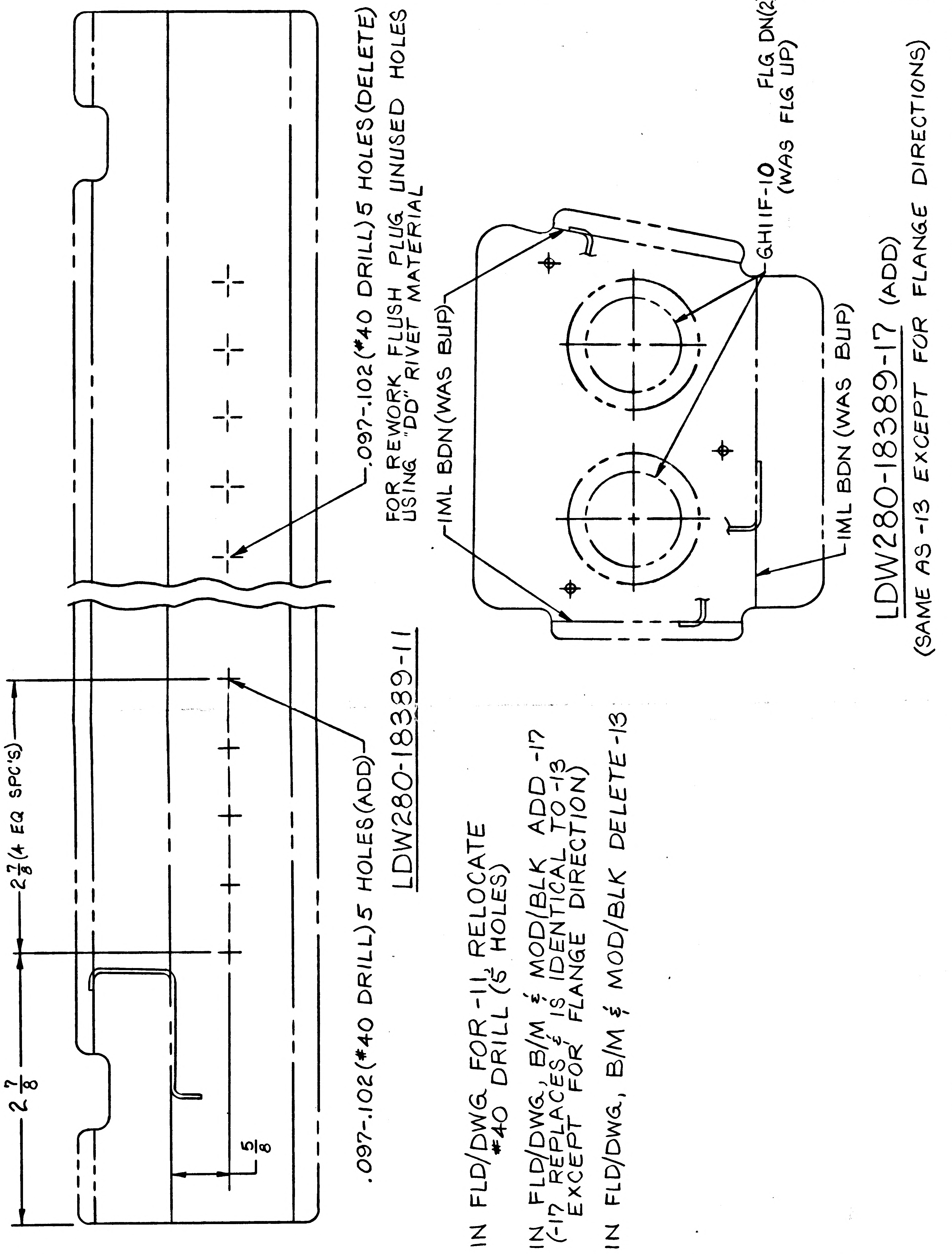
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18389 | EO NO. A2
CONTROL INFO NO. LM-2-4414



.097-.102 (#40 DRILL) 5 HOLES (DELETE)
FOR REWORK FLUSH PLUG UNUSED HOLES USING "DD" RIVET MATERIAL
.097-.102 (#40 DRILL) 5 HOLES (ADD)
$2\frac{7}{8}$ (4 EQ SPC'S)
$2\frac{7}{8}$
$\frac{5}{8}$
LDW280-18389-11
IML BDN (WAS BUP)
IML BDN (WAS BUP)
GH11F-10
FLG DN (2)
(WAS FLG UP)
LDW280-18389-17 (ADD)
(SAME AS -13 EXCEPT FOR FLANGE DIRECTIONS)

IN FLD/DWG. FOR -11, RELOCATE #40 DRILL (5 HOLES)

IN FLD/DWG., B/M & MOD/BLK ADD -17
(-17 REPLACES & IS IDENTICAL TO -13 EXCEPT FOR FLANGE DIRECTION)

IN FLD/DWG., B/M & MOD/BLK DELETE -13

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA 586

REASON FOR EO: DETAIL PARTS CONFLICT WITH ASSEMBLY REQUIREMENTS

DESCRIPTION OF EO: IN FLD/DWG, FOR -11, RELOCATED #40 DRILL (5 PLC'S). IN FLD/DWG, B/M & MOD/BLK REPLACED -13 WITH -17.

GAEC EO RELEASE: JK
02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D (13) LM-4 (34) THRU LM-15 (45) DVT (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED B								
DATE	1/22/68				1/23/68	1/23/68	1/23/68	1/24

PRIORITY: C
DRAWING TITLE: BRACKET~D/S~SCIENTIFIC EQUIPMENT BAY~LOWER DECK~OUTBOARD
DRAWING NO.: LDW280-18389
EO NO.: A2

ISSUED BY LIAISON J. MALONEY 1/23/68 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1634
CONTROL INFO NO. LDW280E 8435

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40).

DRAWING NO. *	TITLE	NEXT ASSY	CHG. NO.
✓ LDW280 - 18388	SEE DWG	LDW280 - 54576	A6
✓ - 18389		- 54576	B2
✓ - 18390		- 54576	A6
- 18391		- 54576	A5
- M17745		- 54576	A7
- M17742		- 54576	A7
- M17770		- 54576	A7
- 18364		- 54576	A5
- 18392		- 54576	A5
- 18512		- 54576	B4
M17854		- 54576	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 2 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8/21-9; JK 8/27/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

APPROVED BY	PBF						
DATE	8-8-69			8/4/69	8/1/69		8/27/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1634

8-25-69
ISSUED BY A. FURIO X 86046 SECTION VDI GROUP NO. 335 PL 25

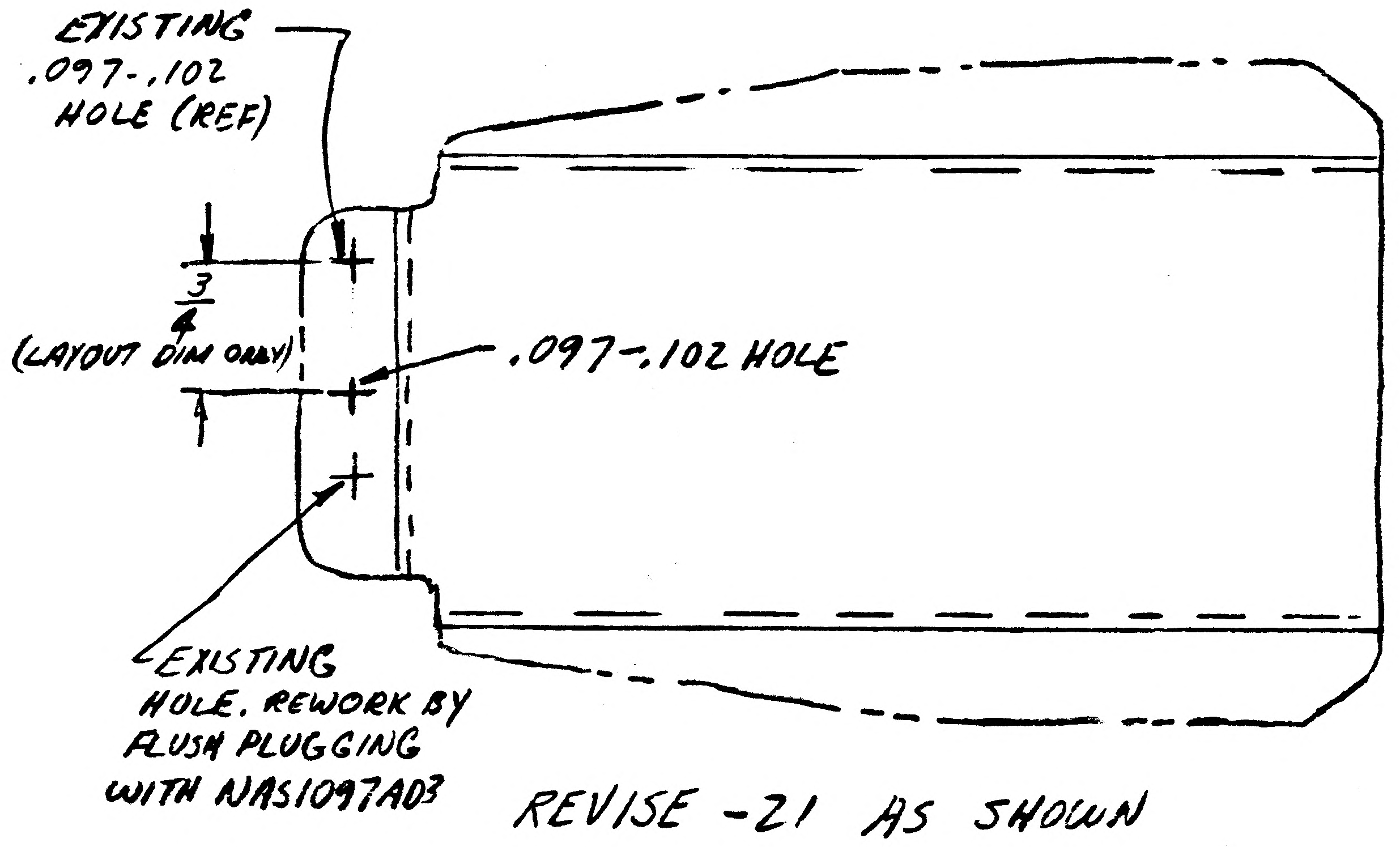
01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18398	EO NO. A1
CONTROL INFO NO. LDW 280 B 0222	



EXISTING .097-.102 HOLE (REF)
3/4
(LAYOUT DIM ONLY)
.097-.102 HOLE
EXISTING HOLE. REWORK BY FLUSH PLUGGING WITH NAS1097AD3

REVISE -21 AS SHOWN

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2011 CCA 668

REASON FOR EO: PROVISIONS FOR MODULARIZED EQUIP STOWAGE IN DESCENT STAGE. HOLE MISLOCATED IN DETAIL

DESCRIPTION OF EO: RELOCATED .097-.102 HOLE IN -21

GAEC EO RELEASE: JK 11/14/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	
		LM-4(34)	
		THRU LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY									
DATE	11/2/67				11-1-67	11/13/67		11/6/67	11-13-67
S	V01	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: CHANNEL - DESCENT STAGE - FORWARD UPPER DECK

DRAWING NO. LDW280-18398

EO NO. A1

11/16
ISSUED BY E.J. Comiskey 7033 SECTION V01 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1668
CONTROL INFO NO. LDW280B7664

REMOVE LM-10(40) THRU LM-14(44) EFFECTIVITY FROM ALL DASH NOS.* FOR THE NOTED N/A *-*.

DWG. NO.*	N/A *-*	DWG. TITLE	CHG. NO.
LDW280-17438	LDW280-54521	SEE DWG.	B2
-17440	-54520		C2
-17841	-54520		B3
-17843	-54522		B2
-17844	-54522		A5
-17845	-54522		A6
-17846	-54522		A6
-17850	-54520 -54521 OK -54522		C4
-18301	-54521		B2
LDW280-18398	LDW280-54522	SEE DWG.	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKGS 50, 51, 52 (5)

REASON FOR EO: REDESIGN OF UPPER DECKS FOR EXTENDED PROP. TANKS

DESCRIPTION OF EO: FOR(*) REMOVED LM-10(40) THRU LM-14(44) EFF. FOR N/A *-*

GAEC EO RELEASE: 9-16-69
OK 9/17/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

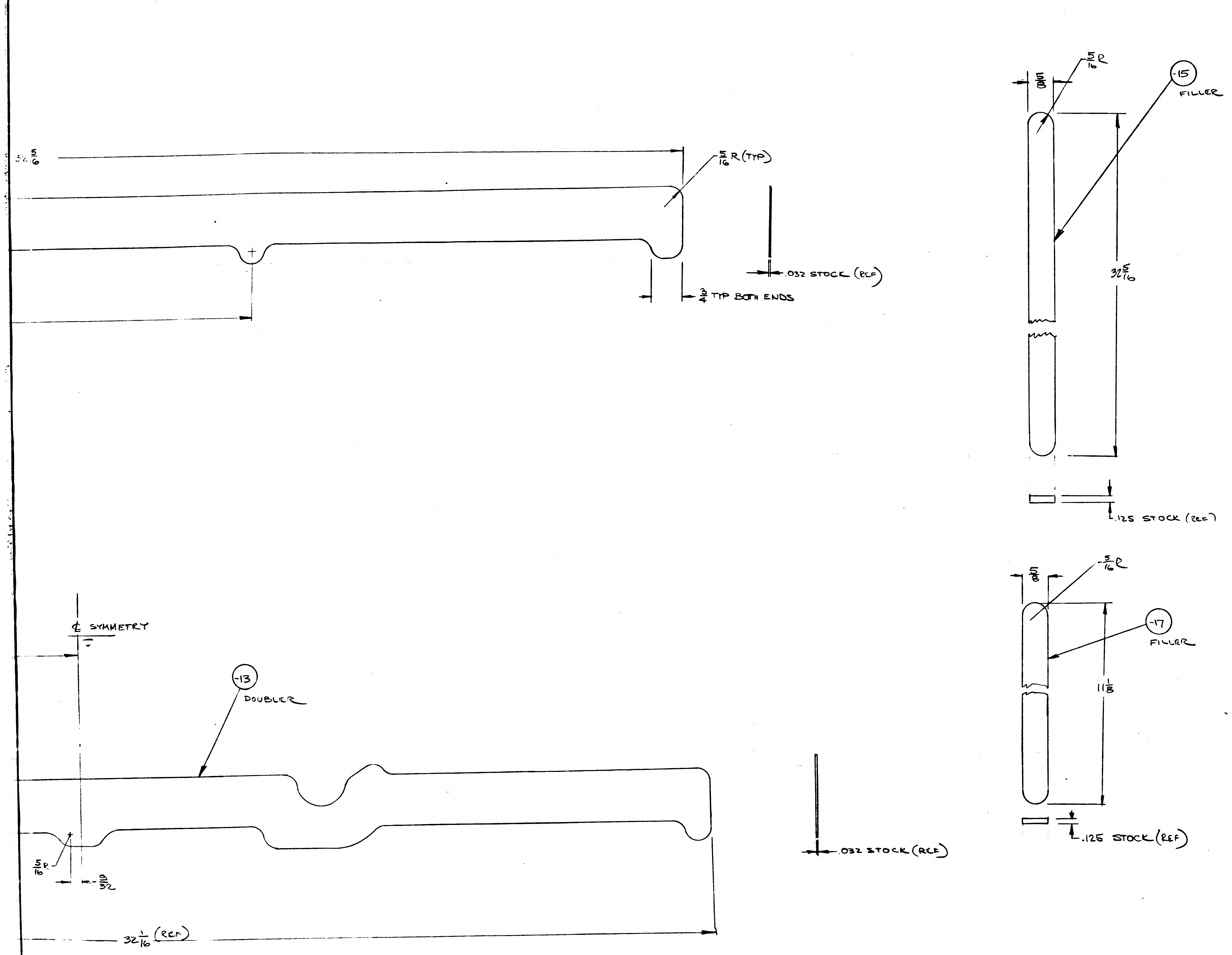
DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	9/16/69			9/16/69	9/16/69		9/16/69	9-17-69

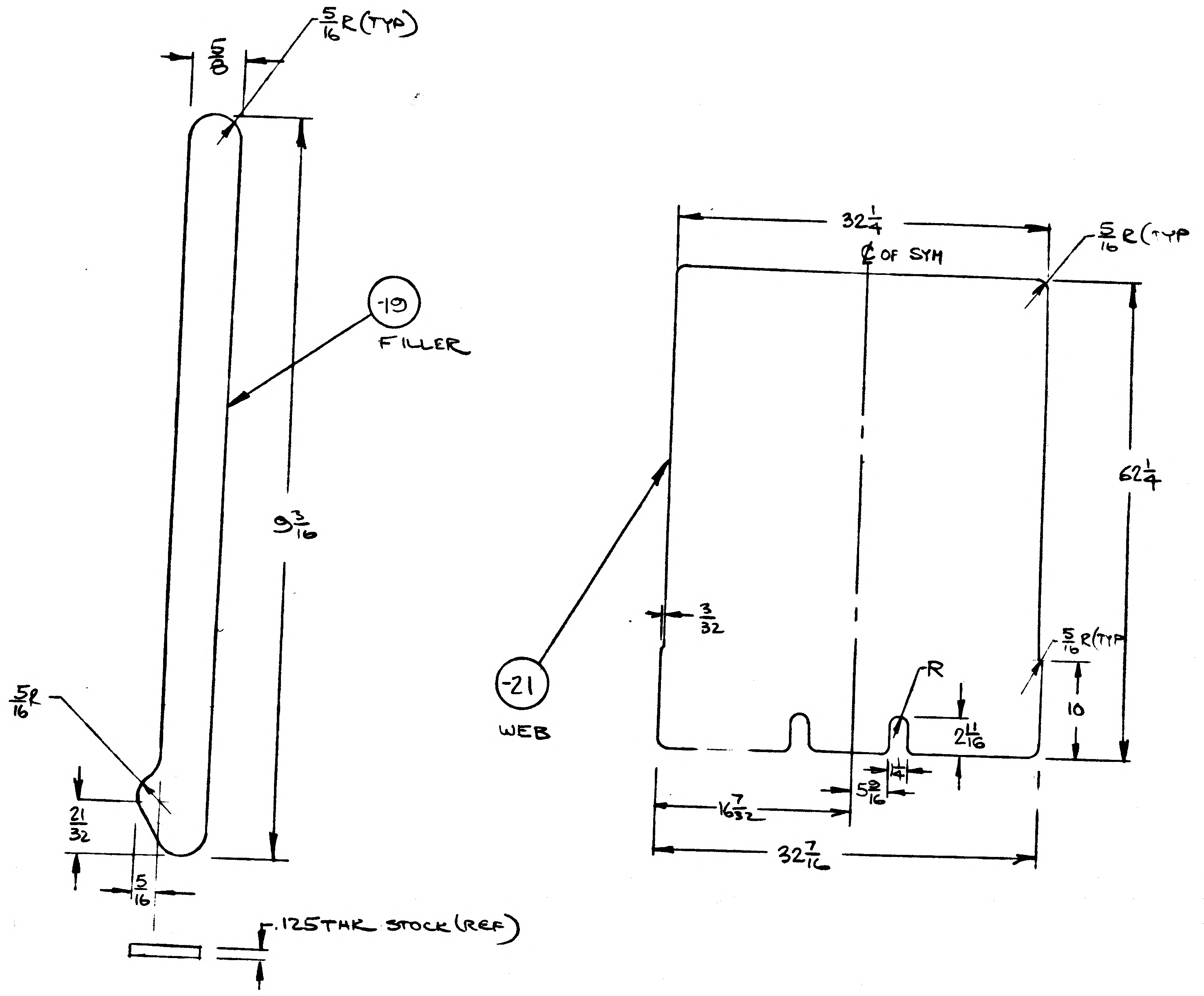
PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1668

9-10-69
ISSUED BY L.KRAVITZ/THORJUSEN ×87222 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01
NAS 9-1100



$32\frac{5}{16}$
$\frac{5}{16}$ R (TYP)
.032 STOCK (REF)
$\frac{3}{4}$ TYP BOTH ENDS
℄ SYMMETRY
-13
DOUBLER
$\frac{5}{16}$ R
$\frac{3}{32}$
$32\frac{1}{16}$ (REF)
.032 STOCK (REF)
$\frac{5}{16}$ R
-15
FILLER
$32\frac{5}{16}$
.125 STOCK (REF)
$\frac{5}{16}$ R
-17
FILLER
$11\frac{1}{8}$
.125 STOCK (REF)



$\frac{5}{16}$ R (TYP)
-19
FILLER
$9\frac{3}{16}$
$\frac{5}{16}$ R
$\frac{21}{32}$
$\frac{5}{16}$
.125 THK STOCK (REF)
$32\frac{1}{4}$
℄ OF SYM
$\frac{5}{16}$ R (TYP)
$62\frac{1}{4}$
-21
WEB
$\frac{3}{32}$
R
$\frac{5}{16}$ R (TYP)
10
$2\frac{11}{16}$
$\frac{5}{16}$
$16\frac{7}{32}$
$32\frac{7}{16}$

LDW280-18400-11 & -13 & -21
MATL 7075-T6 AL ALY SH .032 THK QQ-A-250/12
FIN 76
N/A LDW280-25524 1/MOD
N/A LDW280-25525 1/MOD
LDW280-18400-15, -17 FILLER
MATL 2024-T3 AL ALY SH .125 THK QQ-A-250/4
FIN 76
N/A LDW280-25524 1/MOD
N/A LDW280-25525 1/MOD

LDW280-18400-19 FILLER
MATL 2024-T3 AL ALY SH .125 THK QQ-A-250/4
FIN 76
N/A LDW280-25524 2/MOD
LDW280-25525 2/MOD

ALL PARTS I & T = E
CONT NAS 9-1100

*DWG NOT MADE

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG	✓	LCD 1866	CONTROL INFO NO. LDW82-3274

REASON FOR EO: REPAIR OF END BULKHEADS DUE TO FIRE DAMAGE LCR 1866
DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO
GRUMMAN C EO RELEASE
MODEL: LM
EFFECTIVITY — PROCURING ACT. NO.: — GAEC UNIT NO.: LTA 5(15) — SUB CONTR UNIT NO.:
DRAWING REVISION REQD: * REVISE DWG — RECORD EO
DISPOSITION OF PARTS: NOT REQD — REWORK — SCRAP
BY: GSB
DATE: 9/15/67
VDI
SUPPORT — RELIAB GROUP — GROUP LEADER — STRESS GROUP — LIAISON ENGRG — PROJ ENGR — GOVT
PRIORITY: C
DRAWING TITLE: DOUBLER DESCENT STAGE END BULKHEAD
ENGINEERING ORDER
DRAWING NO.: LDW280-18400
EO NO.: A1
ISSUED BY: G. BARNES/J. STRAKOSCH X1153
SECTION: VDI
GROUP NO.: 335
PL: 82
CODE IDENT NO.: 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

02/02 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 784
CONTROL INFO NO. LDW280B0091

ON DASH NOS. NOTED * WITH N/A NOTED ** REMOVE LM4(34) THRU LM15(45) EFFECTIVITY REQMTS FROM THE FOLLOWING DRAWINGS.

DWG NO LDW280	DASH NO. *	TITLE	N/A NO. ** LDW280	CHG NO.
52648	-13	DOOR INSTL D/S QUAD II SEQ ACCESS	54553	B8
52768	-3-5	FOIL ASSY D/S QUAD II SEQ PLUME IMPINGE	52767	B3
52769	-11	SKIN ASSY D/S QUAD II SEQ PLUME IMPINGE	52767	B1
52744	-25-27	SKIN ASSY D/S QUAD II SEQ PLU IMP SHIELD	52742	A6
18130	-15-17	ZEE QUAD III UPR PLUME IMP. SHIELD	52744	A9
52743	-15-17	FOIL ASSY D/S QUAD II PLUME IMP SHIELD UPR DK	52742	A3
52741	-3	SKIN ASSY D/S QUAD II PLUME IMP SHIELD SIDE FIXED	52739	A2
18125	-19-21	ZEE D/S QUAD II AMBIENT HE ACCESS PLM IMP SHLD	52743	B2
52740	-1	FOIL ASSY D/S QUAD II PLME IMP SHIELD SIDE FIXED	52739	A3
52837	-3	FRAME ASSY D/S QUAD II SEQ ACCESS DOOR	52648	A7
P18174	-1-3	BLANKET ASSY D/S QUAD II SEQ ACCESS COVER	52648	A1
52767	-1	SHIELD ASSY D/S QUAD II SEQ A/D PLM IMP	52648	B4
18221	-17 -11	ANGLE D/S SEQ ACCESS DOOR	52837 52665	A5
P17537	-31-33-35-37-39-41-47 -27-29	FRAME ASSY D/S SEQ THERMAL SHIELD ACCESS DR	52837 52674	A6
P18170	-15-17-19	LINK D/S SEQ ACCESS DOOR	52837	B2
P18172	-11-13 -11-15-17-18	TUBES D/S QUAD II SEQ A/D & JAMB L.H. VERT	52837 52674	A3
P18173	-11-15 -13-15	TUBE D/S QUAD II SEQ A/D L.H. LWR.	52837 52674	A4
P18214	-11-13-15-19-21-23	TUBE D/S QUAD II SEQ A/D LH UPR	52837	A4
P18215	-11-13-15-17-19	PLATE D/S QUAD II SEQ A/D - YOKE	52837	A2
P18216	-11-13-15-17-19-21	PLATE D/S QUAD II SEQ A/D - YOKE	52837	A2
P18217	-11-13-15-17-19	TEE D/S SEQ ACCESS DOOR STRAP SPT	52837	B1
P18218	-11-13-15-17 -19	ANGLES D/S QUAD II SEQ A/D STRAP SPT	52837 52665	B2
P18181	-11-13-15-17-19 -13-19	TUBE D/S QUAD II SEQ A/D R.H. UPR	52837 52674	A1
P18180	-11-13-15-16-17-19	TUBE D/S QUAD II SEQ A/D	52674	A1
P18213	-11 -13-15-17	CLAMP D/S QUAD II SEQ ACCESS JAMB LH LWR	52674 52665	A3
P18176	-23-25	BLANKET ASSY D/S QUAD II SEQ UPR & SIDE PNL	52665	A6
P17581	-3-7	BLANKET ASSY D/S QUAD II VERT	52665	A4
P17575	-13	WASHER D/S THERMAL SHIELD LWR DK STD OFF	52665	B4
52582	-1-15	HINGE ASSY D/S QUAD II SEQ SPT ACCESS FLAP	52674	B3
52674	-1-3	JAMB ASSY D/S QUAD II SEQ ACCESS DOOR	52665	A4
52739	-3	SHIELD ASSY D/S QUAD II PLME IMP. SIDE THERM.	52665	A3
52742	-9-11	SHIELD ASSY D/S QUAD II IMP SHIELD UPR DK	52665	A9

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1433 CCA 586

(5)

REASON FOR EO: ALSEP REDESIGN

DESCRIPTION OF EO: ON -* REMOVED LM-4-15 REQMTS FOR N/A LDW 280-**.

GAEC EO RELEASE: SK 11/1/67

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34)	
		THRU	
LM		LM15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓
APPROVED BY
DATE 10/27/67
P VD1
SUPPORT
RELIAB. GROUP
GROUP LEADER 10-27-67
STRESS GROUP 10/30/67
LIAISON ENGRG
PROJ ENGRG 10/30/67
11-1-67
PRIORITY C
DRAWING TITLE NOTED
DRAWING NO. LEO 280
EO NO. 784

11-10
ISSUED BY PLANTE 1156 SECTION VD1 GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1372
CONTROL INFO NO. LDW280B7430

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18369 ✓	A5	SEE DWG
-18370	A4	
-18372	A4	
-18374	A4	
-18375	A4	
-18378	A4	
-18379	A6	
-18380	A3	
-18381	A5	
LDW280 -18382	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: VK 4/22

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY							
DATE	4/8/69			4-2-69	4/18/69		4/9/69	4/21/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ	CUST

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1372

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1552
CONTROL INFO NO. LDW 280B 8113

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW 280-18365	SEE DWG	B1
368		B2
369		A6
370		A5
372		A5
374		A5
375		A5
378		A5
379		A7
LDW 280-18380	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 32 & 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

Ⓡ GAEC EO RELEASE: SWB 8-13-69; JK 8/15/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
	[illegible]			[illegible]	N		[illegible]	Bauman
DATE	7-29-69			7/29/69	8/2/69		8/7/69	8/14/69
	VDI							

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO.: LEO 280 | EO NO.: 1552

8-26-69 ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1660
CONTROL INFO NO. LDW280B 8446

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS FOR THE NOTED NEXT ASSY. QUANTITY SAME ~~AS~~ FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW 280-17709 ✓	SEE DRAWING	LDW280-54586	C3
-17887 ✓		-54586	C3
-18515 ✓		-54586	B4
-18368 ✓		-54586	B3
-18369 ✓		-54586	A7
-18458		-54619	B3
-18458		-54586	
-18558		-54586	A7
LDW280 M18022		-54679	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 4, 7, (5)

REASON FOR EO: ADDITION OF S.E.Q. BAY FOR TEST ARTICLE

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: SUB 8-12-69 K 9/8/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT REQ'D	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	8-8-69			8/11/69	8/12/69		8/12/69	8/8/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO280	1660

8-27-69
ISSUED BY F. OLIVERI EXT 86098 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1552
CONTROL INFO NO. LDW 280B 8113

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18365	SEE DWG	B1
✓ 368		B2
✓ 369		A6
✓ 370		A5
✓ 372		A5
✓ 374		A5
✓ 375		A5
378		A5
379		A7
LDW280-18380	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 32 & 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

Ⓑ GAEC EO RELEASE: SWB 8-13-69; JK 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	PBT				N			Bauman
DATE	7-29-69			7/29/69	8/2/69		8/7/69	8/14/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1552

8-26-69 ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-68

DWG. NO. LEO 280 | EO NO. /372
CONTROL INFO NO. LDW280B7430

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. ✱

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18369	✓	A5	SEE DWG
-18370	✓	A4	
-18372	✓	A4	
-18374	✓	A4	
-18375	✓	A4	
-18378	✓	A4	
-18379	✓	A6	
-18380	✓	A3	
-18381	✓	A5	
LDW280 -18382		A4	SEE DWG

✱ APPLICABLE DASH NOS

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3587 PKG 54 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — ✱

GAEC EO RELEASE: VK 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY				PST	WJH		JEP	
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/14/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: /372

ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25
052869

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1638
CONTROL INFO NO. LDW280B 8434

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/ LDW 280 - 17711	SEE DRAWING	LDW280-54576	D3
/ -17792		-54576	C3
/ -18340		-54576	A7
/ -18342		-54576	A6
/ -18343		-54576	A5
/ -18344		-54576	A6
/ -18380		-54576	A5
/ -18386		-54576	A5
/ -17623		-23578 -54576	C5
/ -18387		-54576	A6
-18478 ✓		54576 23579	A5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 70 PG 1, 2, (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: 8/29; J/K 8/28/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO
DISPOSITION OF PARTS: NOT REQ'D; REWORK; SCRAP

APPROVED BY							
DATE	8-8-69			8/4/69	8/1/69		8/13/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1638

ISSUED BY 8-25-69 A FURIO X 26046 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

NO. LEO 280
EO NO. 1562
CONTROL INFO NO. LDW 280B 8114

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18381	SEE DWG	A6
✓ 382		A5
✓ 386		A4
✓ 387		A5
✓ 388		A5
389		B1
390		A5
391		A4
392		A4
LDW280-18401	SEE DWG	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 33 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE (E) 8-13-69
JK 8/18/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

APPROVED BY				N			Bauman
DATE	7-29-69			7/29/69	8/2/69		7/2/9	8/15/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1562

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO.	LEO 280	EO NO.	943
CONTROL INFO NO.	LDW280B3241		

FOR THE FOLLOWING PART NO'S. ADD TM-5/R(65) REQMTS, N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9
-17623-19		2	
-18512-11		4	B1
-17711-25		1	C9
-17711-27		1	
-17792-21		1	B9
-17792-23		1	
-18340-15		1	·A4
-18342-11		1	A3
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13		1	·A1
LDW280-18478-15	SEE DWG.	1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2G (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC EO RELEASE: K 5/16/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP NOT REQD

APPROVED BY: DATE 5/13/68 VDI

SUPPORT RELIAB. GROUP

GROUP LEADER 5-13-68

STRESS GROUP 5/13/68

LIAISON ENGRG 5/13/68

PROJ ENGRG 5/16/68

~~GOVT~~

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO 280

EO NO.: 943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 943
CONTROL INFO NO. LDW280B3241

FOR THE FOLLOWING PART NO'S. ADD TM-5/R$^{(65)}$ REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9
-17623-19		2	
-18512-11		4	B1
-17711-25		1	C9
-17711-27		1	
-17792-21		1	B9
-17792-23		1	
-18340-15		1	·A4
-18342-11		1	A3
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3
M17742-13		2	·A4
M17742-14		2	
M17770-11		1	·A3
-18364-13		1	·A2
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2
M17268-1		2	·C5
M17630-1		1	·B5
M17741-11		4	·A4
M17741-13		4	
M17743-13		4	·A3
M17744-13		4	·A3
M17745-11		1	·A3
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5
M17781-11		1	·A2
M17782-11		1	·A2
M17783-11		1	·A1
M17784-11		2	·A5
M17784-12		1	
M17777-11		2	·A2
M17854-11		1	·A2
-18478-13		1	·A1
LDW280-18478-15	SEE DWG.	1	

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NAS 9-1100

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3075 CCA 586 PKG 2G (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC C EO RELEASE: 5/16/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	JAS							
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5/16/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 946
CONTROL INFO NO. LDW280B 3381

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMT'S N/A LDW280-54625 FOR QUANTITIES NOTED:

DRAWING NO*	TITLE	REQ'D/MOD	CHANGE NO.
LDW280M17752-11	SEE DWG	2	A1
M17761-11		2	A1
M17761-13		2	
M17762-1		4	A2
M17763-1		2	A2
M17775-11		2	A2
M17776-11		2	A1
M17778-11		4	A4
M17778-13		4	
M17778-15		2	
M17778-17		4	
M17778-19		2	
M71503-11		2	B1
-18351-1		2	A2
-18391-15		2	A2
-18391-16		2	
-18410-11		2	A5
-18410-13		2	
-18410-19		1	
-18411-15		10	A7
-18411-23		5	
-71510-11		1	A1
-71511-11	SEE DWG	1	A2

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 CCA 586 PKG 2E (5)

REASON FOR EO: ADD TM5/R(65) REQMTS.

DESCRIPTION OF EO: ON-* ADD TM-5/R(65)REQMTS

GAEC EO RELEASE: C DK 5/16/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	5/13/68			5-13-68	5/13/68	5/13/68	5-16-68	

PRIORITY C | DRAWING TITLE: SEE DRAWING | DRAWING NO. LEO 280 | EO NO. 946

5-17-68
ISSUED BY T. COTTER x 3352/P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1371
CONTROL INFO NO. LDW280B7431

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18386 ✓	A3	SEE DWG
-18387 ✓	A4	↑
-18388 ✓	A4	
-18389 ✓	A6	
-18390 ✓	A4	
-18391 ✓	A3	
-18392 ✓	A3	
-18398	A3	
-18401	A4	↓
LDW280-18402	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	LCD3587 PKG 54 PG 7 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: K 4/22/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				PBT	WH			
DATE	4/9/69			4-2-69	4/8/69		4/9/69	4/21/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1371

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

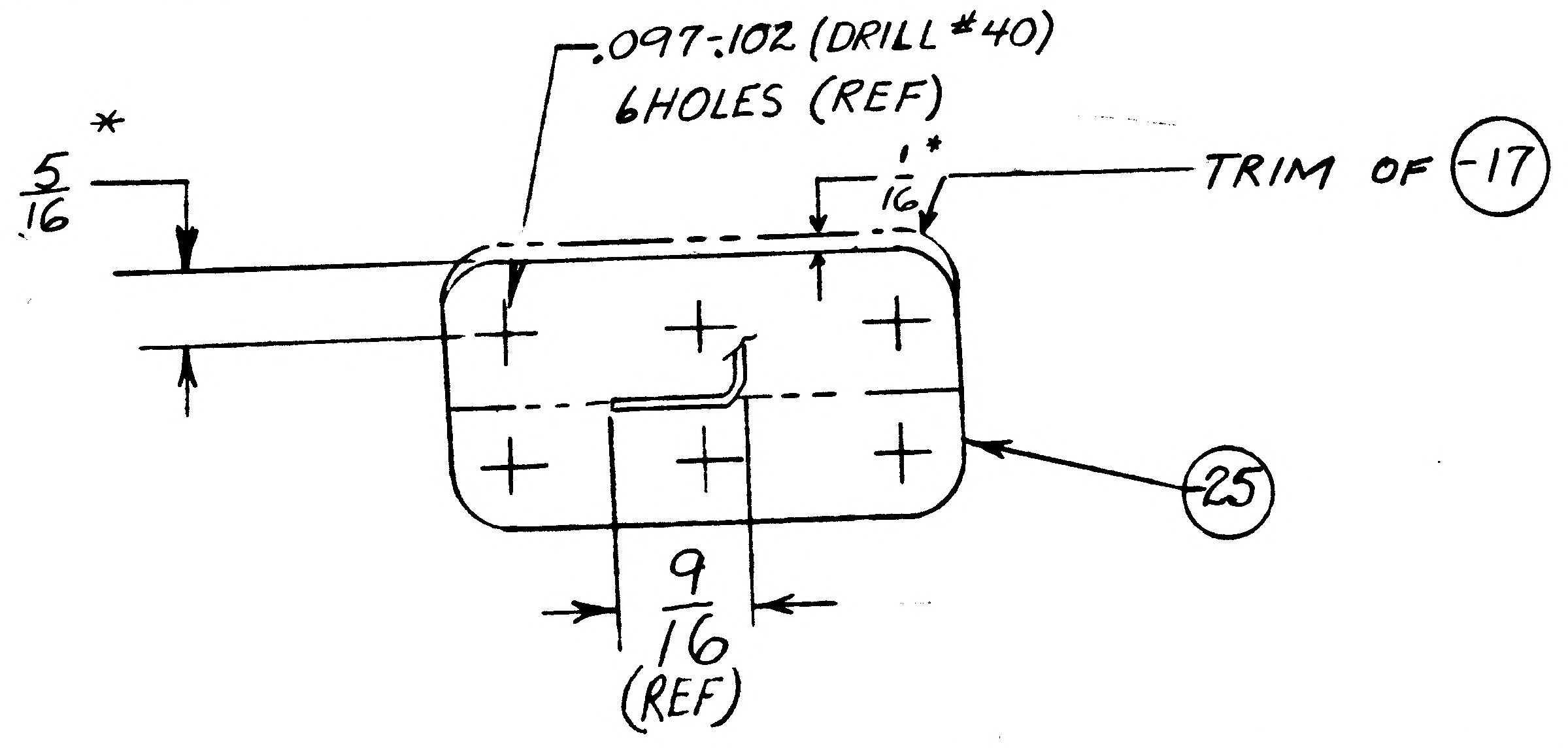
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18398		EO NO. A2	
CONTROL INFO NO. LM-2-4668			

IN DWG/FLD, B/M & MOD/BLK

DELETE -17, REPLACE WITH -25 WHICH IS IDENTICAL EXCEPT AS INDICATED



* DIMENSION FOR REF. TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

(2)

REASON FOR EO
CHANGE REQUIRED TO MOVE RIVETS OUT OF CORNER RADIUS

DESCRIPTION OF EO
IN DWG/FLD, B/M & MOD/BLK
ADDED -25 ~~EFF~~ LM-4(34) THRU LM-15(45)
REMOVED -17 EFF LM-4(34) THRU LM-15(45)

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				—	caw			
DATE	5/1/68			—	4/25/68	4/25/68	5/1/68	4-26

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL - DESCENT STAGE - FORWARD UPPER DECK	LDW280-18398	A2

ISSUED BY LIAISON GLENN BRONSON 3604 SECTION V.D.I GROUP NO. 335 PL 25

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NAS 9-1100